The Third BRICS Young Scientist Forum

DURBAN, SOUTH AFRICA 25-29 JUNE 2018

Building BRICS Youth Leadership through Science, Technology and Innovation

Handbook

science & technology
Department:
Science and Technology
REPUBLIC OF SOUTH AFRICA

ASSAf
ACADEMY OF SCIENCE OF SOUTH AFRICA

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MESSAGE FROM THE SOUTH AFRICAN MINISTER OF SCIENCE AND TECHNOLOGY

On behalf of the Government of the Republic of South Africa, it gives me great pleasure to welcome the many young scientists and innovators that have come to participate in the 3rd BRICS Young Scientist Forum. Recognising the past, present and future role of young people in society, we see this event as a wonderful opportunity for knowledge sharing and solidarity within the framework of BRICS.

The Forum, as indicated by its theme, "Building BRICS youth leadership through science, technology and innovation", will address a wide variety of challenges, such as youth entrepreneurship, the role of women in science, the significance of science diplomacy, and today's research imperatives in energy, water and the social sciences. The event will be an exciting platform for the exchange of ideas and perspectives on youth and science, as well as an opportunity to find creative solutions for our common good.

I look forward to the outcomes from the 3rd BRICS Young Scientist Forum, and wish you all fruitful discussions and a pleasant stay in South Africa.

Ms Mmamoloko Kubayi-Ngubane
Minister of Science and Technology
Republic of South Africa

The 3rd Young BRICS Scientist Forum

MESSAGE FROM THE SOUTH AFRICAN DIRECTOR-GENERAL OF SCIENCE AND TECHNOLOGY

As South Africa celebrates Youth Month, it is a great honour for our Department of Science and Technology, in partnership with the Academy of Science of South Africa, to host the 3rd BRICS Young Scientist Forum.

We believe that this gathering of talented young scientists and innovators from the BRICS member countries will stimulate vibrant discussions on a whole range of pertinent issues that affect our societies, from the role of young women in science to strengthening the link between knowledge generation and innovation leading to new products and services.

One of the Department of Science and Technology's main objectives is the promotion of human capital and high-end skills to support the inclusive and sustainable growth and development of the national economy, and to enhance our citizens' quality of life. In pursuit of this goal, we recognise the pivotal role of international cooperation, and the strategic value of the BRICS partnership.

We wish the capable young men and women attending this Forum every success in their deliberations, and look forward to the emergence of strong and sustainable networks and programmes to support the future endeavours of the BRICS Young Scientist Forum.

Dr Phil Mjwara
Director-General of Science and Technology
Republic of South Africa

The 3rd Young BRICS Scientist Forum

1. INTRODUCTION

The decision to establish the BRICS Young Scientist Forum (YSF) was taken at the 2nd BRICS Science, Technology and Innovation (STI) Ministerial Meeting in Brazil in March 2015. The 1st BRICS YSF was held in Bangalore, India in September 2016. At the 4th BRICS STI Ministerial Meeting in Jaipur, India in October 2016, the BRICS countries agreed to hold the BRICS YSF on a rotational basis.

The 2nd BRICS YSF was held in Hangzhou, China from 11 to 15 July 2017, prior to the 7th BRICS STI Senior Officials Meeting (SOM) and 5th BRICS STI Ministerial Meeting.

South Africa assumed the BRICS rotational Presidency on 1 January 2018 and will host the 10th BRICS Summit in July 2018. In line with the established tradition of previous BRICS Summits, South Africa will host a wide range of BRICS activities leading up to and following the Summit, including the 6th BRICS STI Ministerial Meeting and the 8th BRICS STI SOM.

As part of its BRICS STI activities, South Africa will host the 3rd BRICS YSF in line with the decision taken at the BRICS STI Jaipur Ministerial in October 2016.

1.1 Main Goals of the 3rd BRICS YSF

The main goals of the 3rd BRICS YSF are:

- To provide a platform for talented BRICS young scientists and researchers to exchange perspectives on transformative change and forge sustainable research partnerships, links and networks;
- To promote youth driven creative solutions to the most pressing socio-economic problems in their societies;
- To promote academic and policy exchanges and dialogues amongst the BRICS youth; and
- To promote interactive contact between young scientists and established scientists and researchers from the BRICS member countries.

The 3rd BRICS YSF under the theme ***"Building BRICS Youth Leadership through Science, Technology and Innovation"*** will highlight the strategic importance of science, technology

and innovation as key drivers of youth entrepreneurship and leadership. In addition, the 3rd BRICS YSF will have a dedicated segment on young women in science and include discussions on crosscutting issues such as science advice, science communication and science diplomacy. While the 3rd BRICS YSF will follow the format of previous forums by having thematic discussions (this year the focus will be on energy, water and social science) it will also include additional new components such as the BRICS young innovator prize contest and the BRICS young programmer competition.

1.2 3rd BRICS YSF Programme

The 3rd BRICS YSF programme will include the following activities:

- ❑ Three Parallel Sessions on the Thematic Areas: Energy, Water and Social science
- ❑ BRICS Young Women in Science Dialogue
- ❑ BRICS Young Innovator Prize
- ❑ Workshop on Youth Innovation and Entrepreneurship
- ❑ Seminar on Science Diplomacy, Advice and Communication

1.3 Parallel Sessions on Thematic Areas

The parallel thematic sessions will specifically address issues related to the following topics:

- **Energy** – *The Present and Future Energy Imperatives of BRICS Economies*
- **Water** – *The Strategic Importance of Water Resources in the Context of Climate Change*
- **Social Science** – *The Impact and Challenges of Modern ICT Technologies on Youth Identity and Cultural Choices*

1.4 BRICS Young Women in Science Dialogue

The BRICS Young Women in Science Dialogue will seek to:

- Provide a platform for young women scientists and researchers to discuss pertinent issues and challenges in institutions of higher learning and the workplace, in terms of career choices and mobility, and equality and empowerment; and
- Discuss country perspectives and approaches on practical solutions to these challenges at the institutional and policy levels.

1.5 BRICS Young Innovator Prize

The BRICS Young Innovator Prize is in special recognition of young talented entrepreneurs and researchers, whose outstanding innovations (inventions, products, apps and services) will make a profound impact on the socio-economic environment and conditions of life in BRICS societies today.

1.6 Workshop on Youth Innovation and Entrepreneurship

The workshop on youth innovation and entrepreneurship will discuss practical experiences and seek to address questions such as ***"how to set up an innovation ecosystem for the youth/ and how the BRICS countries can support each other in this strategic endeavour?"*** In addition, it will also examine questions related to the translation of the research work outcomes of young scientists into marketable products and services and the creation of sustainable innovative start-ups. An important outcome of the workshop could be an agreement to set up a platform for BRICS young innovators.

1.7 Seminar on Science Diplomacy, Advice and Communication

Science diplomacy is key in international collaborations and indispensable for the development of young scientists' careers. The seminar will seek to contextualise the role and importance of science diplomacy, advice and communication in young scientist networks and career development and point to the need to establish a BRICS Young Scientists Research Network to enhance communication and coordination of young researchers in BRICS countries.

1.8 Key Deliverables of the 3rd BRICS YSF

The expected deliverables of the 3rd BRICS YSF include:

- The establishment of a BRICS Young Scientist Research Network;
- The setting up of BRICS Platform for Young Innovators; and
- The incorporation of the BRICS Young Innovator Prize and BRICS Young Programmer Competition as permanent features into the format of the BRICS Young Scientist Forum.

2. MEETING DATES AND VENUE

The 3rd BRICS Young Scientists Forum will be held from 25 to 29 June 2018 at Elangeni/Maharani Hotel in Durban.

Address: 63 Snell Parade, North Beach, Durban, 4001

Phone: 031 362 1300

3. COMMITTEES

3.1. Organising Committee

Department of Science and Technology, South Africa and the Academy of Science of South Africa (ASSAf)

4. CONTACT INFORMATION

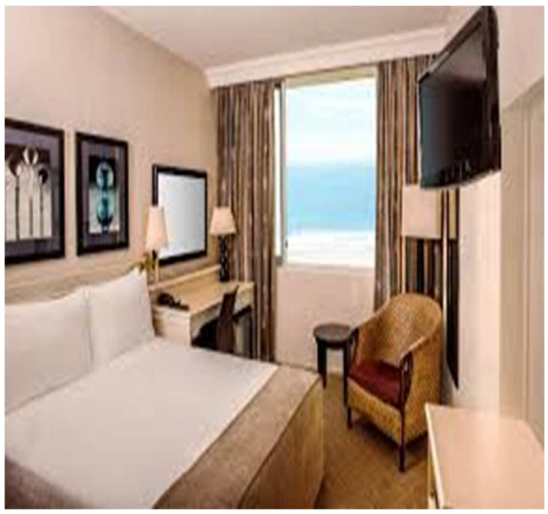
Please direct the enquiries to the appropriate e-mail address as follows:

- Visa application: Kagiso Moloto, e-mail: Kagiso.Moloto@dst.gov.za
- Documentation submission: Bongi Mkhize, e-mail: Bongi.Mkhize@dst.gov.za
- Registration: Johannah Moima/Miranda Mohapi, e-mail: Johannah.Moima@dst.gov.za , Mirranda.Mohapi@dst.gov.za
- Accommodation: Johannah Moima/Miranda Mohapi, e-mail: Johannah.Moima@dst.gov.za , Mirranda.Mohapi@dst.gov.za
- Transportation: Johannah Moima/Miranda Mohapi, e-mail: Johannah.Moima@dst.gov.za , Mirranda.Mohapi@dst.gov.za

5. ACCOMMODATION

An iconic hotel in Durban, the Southern Sun Elangeni & Maharani invites guests to experience a modern full-service stay on Durban's sun-kissed beachfront. Sweeping Indian Ocean views along the 7km promenade have set the scene for memorable holidays and exceptional events for nearly five decades. Southern Sun Elangeni & Maharani promises an unforgettable stay in a contemporary classic. Sleep in comfort, dine with variety and meet with style. Uniquely able to accommodate and facilitate business and special events in a vibrant beach location. Large scale events, group accommodation, exceptional venues and seamless service combine to set Southern Sun Elangeni & Maharani apart. A location metres from Durban's most loved beaches, inviting and fully equipped accommodation with sea views, a choice of three heated outdoor pools and a different dining venue for every night of your stay –which is why they welcome back guests year after year. Experience personalised service from one of South Africa's largest and most-revered hotels. It has built its reputation by setting the standard for service and personal attention and we know you expect nothing less.

Address: 63 Snell Parade, Durban, Kwazulu-Natal, South Africa

Hotel Reservations & Customer Contact Centre: 0861 44 77 44 | +27 31 362 1300

Website: https://www.tsogosun.com/southern-sun-elangeni-maharani

6. AIRPORT

King Shaka International Airport was officially opened in 2010 and has since garnered many accolades. The airport was voted the top Regional Airport for Africa in the Skytrax World Airport Awards in 2013 to 2016, and was second in the 2013/2014/2015/2016 ACI for the Best Airport in the Middle East/Africa category. In 2016 Skytrax voted the airport for the Best Airport Staff in Africa. The airport is a major economic catalyst for investment and growth in the region. From inception, King Shaka International Airport enjoyed only 5% of international traffic, but this sector has shown great growth to almost 24% presently. In the last quarter of 2015, and during the hosting of the successful World Routes 2015 Qatar Airways; Turkish Airlines, Ethiopian Airlines, Zambia and FlySafair were launched and these airlines are now flying to Durban to compliment the current carriers operating at King Shaka International Airport.

King Shaka International Airport currently has a capacity capability of 7.5 million passengers per annum. The airport, until the end of April financial year 2017 was handling almost 5.2 million passengers annually. The 3.7 km runway allows for the Airbus A380 and Boeing 747s to land and take off; and provision has been made for a second runway when demand requires this in the future.

The increased international passenger capacity has also greatly assisted in ensuring the growth of local exports, with international cargo throughput volumes, experiencing a double-digit growth of 25% from January to July 2017. This has come as a direct result of the increased capacity.

For more information, please visit http://www.airports.co.za/airports/king-shaka/at-the-airport

7. GROUND TRANSPORT

Communal Transport (minibuses) from King Shaka International Airport to Elangeni Maharani Hotel will be available for participating delegates. The communal transport will ONLY be operating from the Airport to the hotel upon arrival and departure. Additional transport may be hired by Delegations at their own expense. Rental vehicles are available through well -known rental companies. Delegations requiring additional chauffeur-driven vehicles can arrange this through car hire companies at their own expense.

8. PORT OF ENTRY REQUIREMENTS AND CUSTOMS REQUIREMENTS

All delegates arriving in South Africa must hold valid passports. All passports must be valid for at least 30 days beyond the expected date of departure from the Republic and must furthermore have at least one unused visa page when presented for endorsements. Delegates who require visas are requested to arrange through South African diplomatic or consular missions in their respective countries. All delegates must, after they have collected their entire luggage, proceed to the Customs declaration channels with their personal luggage to make a Customs Declaration to the officers operating the channels. Persons who have nothing to declare, have goods that fall within their duty free allowances and do not carry any prohibited or restricted goods, commercial goods or goods carried on behalf of another person may proceed to the Green Channel. In all other instances or where a traveller is not sure, the Red Channel should be selected. Please note that all fresh produce, fruit, vegetables, seeds, plants, bulbs, tubers, cut flowers, cuttings of plants, honey, eggs, milk, cheese and all meat products are restricted from importation into South Africa. Should any participant in the Forum wish to import such, arrangements should be made with the South African Department of

Agriculture for the importation of such. Payment of Customs Duties and VAT may be made in South African Rand or by means of a credit card.

9. MEDICAL AND HEALTH SERVICES

Delegates are encouraged to obtain medical travel insurance from a reputable organisation, as medical treatment at private facilities in South Africa is expensive, with public facilities also levying charges for services rendered. It is therefore strongly recommended that delegates acquire medical travel insurance when purchasing their flight tickets. This insurance is relatively cheap and will ensure a trouble free trip should medical treatment be required

10. GENERAL INFORMATION

10.1 Banking Services and Currency

Foreign exchange facilities are available through Bureau de Change facilities on weekdays from 09:00 to 15:30 and on Saturdays from 08:30 to 11:00. Most internationally recognised currencies and travellers cheques can be exchanged at commercial banks, hotels and international airports. The unit of currency is the Rand (ZAR). Exchange rates are subject to fluctuation.

10.2 Weather

During June and July, the average maximum temperatures in Durban are 28C to 34C and the average minimum temperature is 15C.

10.3 Time

The time in South Africa is GMT +2.

10.4 Electricity supply

The power supply in South Africa is 220vAC, 50Hz. Electrical sockets are rounded three pronged.

10.5 Durban

Durban, a coastal city in eastern South Africa's KwaZulu-Natal province, is known for its African, Indian and colonial influences. Refurbished for soccer's 2010 World Cup, the seafront promenade runs from uShaka Marine World, a huge theme park with an aquarium, to the futuristic Moses Mabhida Stadium. The Durban Botanical Gardens showcases African plant species

Weather: 22°C, Wind NE at 3 km/h, 52% Humidity

Population: 595 061 (2011) United Nations

Province: KwaZulu-Natal

10.6 Business and shopping hours

Offices and businesses are generally open from 08:00 to 17:00, Monday to Friday. Shopping hours vary but most shops are open from 09:00 to 17:00 Monday to Friday and from 09:00 to 13:00 on Saturdays. Some shops are open on Sundays between 09:00 hours to 13:00.

10.7 Safety and security

As always, travelers should take a few basic precautions to ensure a safe and pleasant visit:

- Never leave personal property unattended
- Store valuables in your hotels safety deposit box
- Keep your hotel room locked
- Transport is available and can be booked on time for other special attention
- Avoid displaying expensive jewelry and cameras
- Do not carry large sums of money on your person
- Stay away from dark, isolated areas

10.8 Useful numbers

Emergency response: 10111

Medical: 10177

11 PROGRAMME AT GLANCE

Theme: Building BRICS Youth Leadership through Science, Technology and Innovation	
Sunday, 24 June 2018	
16h00-19h00	**Registration**
19h00-21h00	**Welcome Reception**
19h00-19h10	**Opening Remarks** Department of Science and Technology of South Africa
19h10-19h30	**Welcoming Address by the Executive Mayor of eThekwini Municipality** Councillor Zandile Ruth Thelma Gumede
19h30-21h00	**Dinner**
Monday, 25 June 2018	
Session 1: Opening of the 3rd BRICS Young Scientist Forum	
09h00-10h00	**Registration** (Tea, Coffee and Refreshments Served)
10h00-10h05	**Opening Remarks**
10h05-10h20	**Address by the Member of the Executive Committee (MEC) of KwaZulu Natal Province for Education**
10h20-10h40	**Keynote Address** Department of Science and Technology of South Africa
10h40-11h00	**Remarks from Leaders of BRICS Delegations** • Brazil (5 min) • India (5 min) • Russia (5 min) • China (5 min)
11h00-11h15	Tea Break
11h15-11h30	**Outline of the 3rd BRICS Young Scientist Programme** Department of Science and Technology of South Africa

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11h30-12h15	***Welcoming Lecture - Youth and Science in the Modern Era***		
12h15-12h30	**Group Photo**		
12h30-13h30	Lunch		
Session 2 : BRICS Young Women in Science Dialogue			
13h30-13h40	**Facilitator Opens the Dialogue and Introduces the Main Speakers**		
13h40-14h00	**Presenter 1** ***Topic: The Strategic Role of Women in Globalised Science***		
14h00-14h15	**Presenter 2** ***Topic: My Road Through Science: Achievements and Challenges***		
14h15-14h30	**Lead Discussant** Brazil		
14h30-14h45	**Discussant** Russia		
14h45-15h00	**Discussant** India		
15h00-15h15	**Discussant** China		
15h15-15h30	**Q&A**		
15h30-15h45	Tea/Coffee Break		
15h45-16h45	**Group Discussion**		
16h45-17h00	**Facilitator Wrap up and Closing Comments**		
Tuesday, 26 June 2018			
Session 3: Parallel Sessions on Energy, Water and Social Sciences			
09h00-09h15	**Opening Remarks** Department of Science and Technology of South Africa		
09h15-12h30	**Breakaway of Parallel Sessions Part 1**		
	Parallel Session on Energy	**Parallel Session on Water**	**Parallel Session on Social Science**

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	Topic: Present and Future Energy Imperatives of BRICS Economies	***Topic: Strategic Management and Conservation of BRICS Water Resources in the Context of Global Climate Change***	***Topic: Impact and Challenges of Modern ICTs on Youth Identity and Socio-Cultural Choices***
09h15-09h25	**Facilitator Introduction**	**Facilitator Introduction**	**Facilitator Introduction**
09h25-09h45	**Presenter 1** China	**Presenter 1** Russia	**Presenter 1** Brazil
09h45-10h00	**Lead Discussant** India	**Lead Discussant** South Africa	**Lead Discussant** Russia
10h00-10h10	**Discussant** South Africa	**Discussant 1** Brazil	**Discussant 1** South Africa
10h00-10h20	**Discussant 2** Brazil	**Discussant 2** India	**Discussant 2** China
10h20-10h30	**Discussant 3** Russia	**Discussant 3** China	**Discussant 3** India
10h30-10h45	Tea/Coffee Break		
10h45-12h00	**Breakaway of Country Groups**	**Breakaway of Country Groups**	**Breakaway of Country Groups**
12h00-12h25	**Summary of Country Groups** 5 min Per Presentation • Brazil • Russia • India • China • South Africa	**Summary of Country Groups** 5 min Per Presentation • Brazil • Russia • India • China • South Africa	**Summary of Country Groups** 5 min Per Presentation • Brazil • Russia • India • China • South Africa
12h25-12h30	**Facilitator Wrap-up and Closing Comments**	**Facilitator Wrap-up and Closing Comments**	**Facilitator Wrap-up and Closing Comments**
12h30-13h30	Lunch		
Session 4A: BRICS Young Innovator Prize			
13h30-13h40	**Chair Opens the Competition and Introduces the Adjudication Panel and the Participants**		

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13h40-13h50	**Opening Remarks** Department of Science and Technology of South Africa
13h50-14h15	**Presentation of the Rules**
14h15-15h45	**Young Innovator Prize – 1st Session of Elimination Round** 20 min Per Submission • Brazil • Russia • India • China • South Africa
15h45-16h00	Tea/Coffee Break
16h00-17h40	**Young Innovator Prize – 2nd Session of Elimination Round** 20 min per Submission • Brazil • Russia • India • China • South Africa
17h40-18h15	**Adjudication Panel Deliberates**
18h15-18h25	**Adjudication Chair Announces the 5 Competitors to go through to the YIP Finals** South Africa
18h25-18h30	**Chair Wrap-up and Closing Remarks**

Session 4B: Breakaway of Parallel Sessions Part 2 - Open Platform for Presentations on Research Areas and Priorities

	Parallel Session on Energy ***Topic: Present and Future Energy Imperatives of BRICS Economies***	**Parallel Session on Water** ***Topic: Strategic Management and Conservation of BRICS Water Resources in the Context of Global Climate Change***	**Parallel Session on Social Science** ***Topic: Impact and Challenges of Modern ICTs on Youth Identity and Socio-Cultural Choices***
13h30 - 13h35	**Facilitator Introduction**	**Facilitator Introduction**	**Facilitator Introduction**
13h35 - 15h45	**Presentations** 10 min per presentation	**Presentations** 10 min per presentation	**Presentations** 10 min per presentation

15h45-16h00	Tea/Coffee Break		
16h00 - 19h30	**Presentations** 10 min per presentation	**Presentations** 10 min per presentation	**Presentations** 10 min per presentation
Wednesday, 27 June 2018			
Session 5: Workshop on Youth Innovation and Entrepreneurship			
09h00-09h10	**Facilitator Opens the Workshop and Introduces the Main Speakers**		
09h10-09h25	**Opening Remarks**		
09h25-09h45	**Presenter** China		
09h45-10h00	**Lead Discussant** Brazil		
10h00-10h10	**Discussant 1** India		
10h10-10h20	**Discussant 2** Russia		
10h20-10h30	**Discussant 3** South Africa		
10h30-11h00	**Q&A**		
11h00-11h15	Tea/Coffee Break		
11h15-12h15	**Group Discussion**		
12h15-12h30	**Facilitator Wrap-up and Closing Remarks**		
12h30-13h30	Lunch		
Session 6: Seminar on Science Diplomacy, Advice and Communication			
13h30-13h40	**Facilitator Opens the Seminar and Introduces the Main Speakers**		
13h40-14h05	**Presenter 1** South Africa		
14h05-14h20	**Lead Discussant** India		

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14h20-14h30	**Discussant 1** Russia
14h30-14h40	**Discussant 2** Brazil
14h40-14h50	**Discussant 3** China
14h50-15h15	**Q&A**
15h15-15h30	Tea/Coffee Break
15h30-16h30	**Group Discussion**
16h30-16h45	**Facilitator Wrap-up and Closing Remarks**
Thursday, 28 June 2018	
Session 7: BRICS Young Innovator Prize Finals	
09h00-09h05	**Chair Opens Session and Welcomes 5 Finalists**
09h05-09h15	**Remarks by the Chair of the Adjudication Panel**
09h15-11h00	**Young Innovator Prize Finals** 35 min per Submission Competitor No.1 – Name, Surname and Country Competitor No.2 - Name , Surname and Country Competitor No.3 - Name , Surname and Country
11h00-11h20	Tea/ Coffee Break
11h20-12h30	**Young Innovator Prize Finals** 35 min per Submission Competitor No.4 - Name , Surname and Country Competitor No.5 - Name , Surname and Country
12h30-13h30	Lunch
Session 7: BRICS Young Innovator Prize Results	
13h30-15h00	**Adjudicator Panel deliberates**
13h30-15h00	**Networking Session**

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15h00- 15h15	**Chair of the Adjudicator Panel announces the winners of the BRICS Young Innovator Prize**
15h15- 15h30	**General Feedback of Adjudication Panel** • Brazil (3 min) • Russia (3 min) • India (3 min) • China (3 min) • South Africa (3 min)
15h30- 15h45	**Chair Wrap-up and Closing Remarks**
15h45	**Delegates at leisure**
Friday, 29 June 2018	
Closing Session of the 3rd BRICS Young Scientist Forum	
09h00- 09h10	**Chair Opens the Final Session and Welcomes all the Participants of the 3rd BRICS Young Scientist Forum**
09h10- 09h30	**Presentation by MERSETA**
09h30- 10h00	**Prize Giving Ceremony** • BRICS Young Innovator Prize
10h00- 10h25	**Closing Remarks** Department of Science and Technology of South Africa • Leader of the delegation of Brazil (5 min) • Leader of the delegation of Russia (5 min) • Leader of the delegation of India (5 min) • Leader of the delegation of China (5 min)
10h25- 10h45	**Media Session** Leaders of the BRICS delegation
11h00	**Excursion**

12 BRICS YOUNG SCIENTISTS PARTICIPANTS

Brazil

Prof Adriano Alonso

Institution: Universidade federal de Minas Gerais

Tel: 55-31-3409-5860

Email: adrianov@dcc.ufmg.br

Theme: Seminar on Science Diplomacy, Advice and Communication

Title: N/A

Biography

Prof Adriano Alonso Veloso is an associate professor at the Computer Science Department of UFMG, Brazil. He holds a PhD (2009) degree in computer science from UFMG. He was a postdoctoral researcher at Cornell University (2013), and also held research positions at Rensselaer Polytechnic Institute (2007), and at the Ohio-State University (2003). He was a research member of the National Institute of Science and Technology for the Web (2009-2014) and research director of UFMG (2012-2014). His research interests include machine learning and natural language processing algorithms and theory. He has published over 100 research articles in several major academic venues and journals, including SIGKDD, ACL, SIGIR, ICDM, CIKM, ICLR, and ECML-PKDD. He was an Affiliate Member of the Brazilian Academy of Sciences (2012-2016), and has coordinated and participated in research projects funded by federal grants as well as projects in collaboration with the industry.

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Prof Fernanda Werneck

Institution: Instituto Nacional de Pesquisas da Amazônia (INPA) / National Institute of Amazonian Research (INPA)

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Email: fewerneck@gmail.com

fernanda.werneck@inpa.gov.br

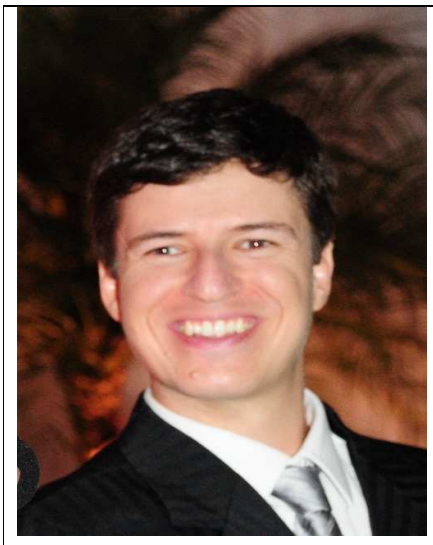
Theme: BRICS Young Women in Science Dialogue

Title: N/A

Biography

Dr Werneck leads a productive Brazilian research group in evolution and systematics at the National Institute of Amazonian Research-INPA (where she is a Research Associate since 2013), whose results have theoretical and practical implications for the fields of biodiversity-related knowledge. At INPA, Dr Werneck acts as a researcher, professor and advisor of Master's and Doctoral students in three graduate programs. She is also the head coordinator of the Scientific Biological Collections Program, where she curates the Amphibian and Reptiles Collection and oversees nine biological collections (fauna, flora, and micro-organisms) that hold invaluable repositories of the Amazonian biota, essential for safeguarding biodiversity. She coordinates research projects funded by several agencies and has a research group formed by undergraduate, graduate students, and research assistants. Dr Werneck actively participates in the training of qualified human resources in Brazil, through advising, teaching graduate-level courses/workshops, participation in committees, project evaluations. The research developed by Dr Werneck's group and her extensive collaborative network is an important reference for studies of biota evolution and

diversification of various South America megadiverse biomes, including rainforest and dry vegetation ecosystems, and has many implications for understanding processes responsible for generating the high Neotropical biodiversity and conservation of its evolutionary processes. The Werneck lab also investigates effects of climate change on the genetic diversity, adaptive capacity and extinction risks of species and natural populations of amphibians and reptiles in the two largest biomes of South America (Amazonia and Cerrado), and the ecotone between them. Dr Werneck was recently recognized through national (Brazil regional L'Oreal-UNESCO-ABC For Women In Science Award 2016) and international awards (L'Oreal-UNESCO International Rising Talents For Women In Science 2017), and honours to participate in the Brazilian Academy of Sciences-Young Researchers 2017 and has been an active voice in Brazil to promote and value women in Science.



Prof Frederico Kronemberger

Institution: Federal University of Rio de Janeiro

Tel: : +55 21 976136857

Email: frederico@peq.coppe.ufrj.br

Theme: Parallel Session on Energy

Title:

Biography

In the past few years, first as a PhD student and then as a professor at the Federal University of Rio de Janeiro, Prof Kronemberger has been carrying out several research projects in

Chemical Engineering, mainly related to Membrane Separation Processes. He has focused his career in this innovating area due to the large possibilities to improve materials and processes that could help the development of Brazil and, naturally, the development of BRICS. Up to now, he has advised 7 Master students and 3 PhD students, besides ongoing orientations. Among these student oriented projects and contracted research projects, Prof Kronemberger has worked with membrane bioreactors, membrane gas separation, pervaporation, membrane distillation, nanofiltration, and so on. Membrane processes are usually applied to solve any industrial or lab scale problem, making any separation possible or intensifying existing production processes, by reducing apparatus footprint and energy and/or water consumption. As examples that he recently worked with, he can mention the biogas upgrading, consisting in producing biogas, a very sustainable energy source, out of waste; the investigation of membrane distillation, to treat water/effluent using waste heat energy or integrated to the sugar-cane ethanol production, improving yields and reducing vinasse volume; and the improvement in the membrane bioreactors used in effluent treatment, by testing the design of new permeators and new operational concepts, as using osmotic membrane bioreactors.

Mr Heygler de Paula

Institution: Softex

Tel: +55 31 998 083 416

Email: heygler@softex.br

Theme: Workshop on Youth Innovation and Entrepreneurship

Title:

Biography

Specialist in Business Management by Fundação Dom Cabral and bachelor's in business Administrator by Pontifícia Universidade Católica de Minas Gerais. Mr Heygler de Paula

has 15 years of experience in sales, market planning, business consulting, innovation management and business modelling for small and medium businesses. He participated in the management of the selection of start-ups in the SEED program of the Government of Minas Gerais. He was responsible for Alliances and Partnerships of the Start—Up Brazil program, a pioneer Brazilian public—private initiative to foster start-ups, an initiative of the Ministry of Science, Technology, Innovations and Communications. He directed the implementation operations of AgriHub MT, the first Brazilian institutional action of technological innovation for agriculture and livestock. He is currently Head of Entrepreneurship at SOFTEX and is National Manager of the StartUp Brazil Program.

Dr Joao Bassin

Institution: Federal University of Rio de Janeiro

Tel: +5521983545637

Email: jbassin@peq.coppe.ufrj.br

Theme: Parallel Session on Water

Title:

Biography

Dr Joao Bassin holds a bachelor's degree in Chemical Engineering from the Federal University of Santa Catarina (2006), a Master's (2008) and PhD Degree in Chemical Engineering from the Alberto Luiz Coimbra Institute for Graduate Studies and Engineering Research (COPPE) at the Federal University of Rio de Janeiro (2012) and also in Environmental Biotechnology by Delft University of Technology, The Netherlands (2012). His PhD thesis was awarded four prizes, among them the CAPES Prize of Thesis (Category - Engineering II, CAPES, Brazil). He is currently an Adjunct Professor of the Chemical Engineering Program at COPPE. His research is mainly focused on the development and

application of innovative technologies for the treatment of municipal and industrial wastewaters, combining both fundamental and applied research. He is supervising many Master (5) and PhD (14) students in Chemical, Environmental and Civil Engineering courses. As part of his research activity, he has worked as a reviewer of more than 40 international journals.

Dr Leonardo Fontes

Institution: Instituto de Estudos Sociais e Políticos (IESP/UERJ)

Tel: +5511 976706864

Email: leo.ofontes@gmail.com

Theme: Session on Social Science/ICT

Title:

Biography

Dr Leonardo Fontes has worked as an advisor of the Ministry of Science and Technology in 2011 and 2012. During that period he could work with important public policy developed in Brazil in the field of technological scientific innovation such as "Science Without Borders" and the National Centre for Monitoring and Early Warning of Natural Disasters. (CEMADEN). During his PhD research focused on the experience of social mobility and struggle for citizenship in urban peripheries of São Paulo city he built important dialogues with researchers from other countries with similar interests, especially India and South Africa.

The 3rd Young BRICS Scientist Forum

Dr Rafael Duarte

Institution: São Paulo State University (UNESP)

Tel: +5511953702571

Email: r.duarte@unesp.br

Theme: Parallel Session on Water

Title:

Biography

Since 2005 Dr Duarte has published 17 manuscripts in indexed journals mainly related to the environmental science, toxicology, physiology and biochemistry fields where Dr Duarte is the first author in 7 of these publications. Currently, Dr Duarte has an It-I-index of 9 with more than 190 citations since his first publication. Dr Duarte has published in high profile journals such as Aquatic Toxicoloo, Journal of Experimental Biology, Chemosphere, Scientific Reports and Science of the Total Environment. In 2012, Dr Duarte was invited to participate of a conference in Kunming/China and he talk about the use of "Biotic Ligant Model to Predict Copper Toxicity in Amazon Waters". Since 2015 Dr Duarte is an assistant professor in São Paulo State University (UNESP) and currently he is supervising four undergraduate students, and three master students in Aquatic Biodiversity Post-Graduation Programme.

The 3rd Young BRICS Scientist Forum

Mr Raphael Machado Rafael Duarte

Institution: Agrosmart

Tel: +5519998352708

Email: raphael@agrosmart.com.br

Theme: BRICS Young Innovator Prize Competition

Title:

Biography

Co-founder and Product director at Agrosmart. Board member at 4Lab- Innovation center in IoT. Graduated in Design at the Istituto Europeo di Design and Bauhaus-Universität Weimar. Maker, loves to build solutions that bring together hardware, technology and design.

Ms Simony Cesar Ramos

Institution: Federal University of Pernambuco

Tel: +55 081 99808 2656

Email: simonycesarr@gmail.com

Theme: BRICS Young Innovator Prize Competition

Title:
Biography Social Communications student- Advertising and propaganda at UFPE, developing studies in the fields of big data visualisation, information design, rights to the city, women urban mobility, sharing economy and consumption behaviour.

Russia

	Mr Semenovsky Igor **Institution**: Financial University under the Government of Russian Federation / Assistant to a deputy of the State Duma of the Federal Assembly of the Russian Federation **Tel**: +7 903 585-84-54 **Email**: i.semenovskiy@yandex.com
Theme: Parallel Session on Social Sciences	
Title: Influence of the modern technologies on the formation of the person and its values in the digital ag	
Biography My name is Igor Semenovskiy. I am a single-minded researcher and a young manager with a broad outlook, good organizational skills and other qualities. I am a lawyer, interpreter and lecturer-researcher by education. My professional and scientific interests, as well as hobbies are: international relations, geopolitics, Russia's social-economic development and its position in the world, intercultural communications, international and constitutional law, modern technologies and other spheres. I worked in the Department for state programs and regional development of the state corporation Vnesheconombank and in the football club Dynamo Moscow. At the present time I work as an assistant to a deputy of the State Duma	

of the Federal Assembly of the Russian Federation for work in the State Duma.. I am the author of more than 15 scientific publications in the field of International, European and Constitutional law, including a number of them dedicated to Brazil, India and Russia as BRICS member-states. In 2017 I finished the postgraduate education in Finance University under the Government of the Russian Federation (Department for economic activities legal regulation / Chair of Constitutional and International Law). In 2017 I was student of the All-Russian scientific and educational program «BRICS School». The theme of my scientific thesis is: «The federative structure constitutional principles of the Russian Federation and the Federative Republic of Brazil: a comparative law analysis», its defense is planned in October 2018. This study is a first comparative law work devoted to the constitutional and state-territorial structure of Russia and Brazil. This theme corresponds to the provisions of the Concept of Russia's participation in the BRICS, including facilitating the solution of such an urgent task of research and higher education institutions as an in-depth study of the internal and foreign policies of Russia's partners in this association, the purposeful expansion of the regional and language preparation of specialists for personnel support for the participation of the Russian Federation in the BRICS in all areas of its activities. As a goal of my participation in the 3rd BRICS Young Scientist Forum, I can name a worthy representation of Russia on this Forum. The tasks are: to get acquainted with the points of view of the leading practitioners and experts on the development of the BRICS, its member states, certain areas of their cooperation and the situation in the modern world, as well as the exchange of the point of views with foreign colleagues on pressing issues of bilateral and multilateral cooperation of the BRICS member states in different areas, the definition of positive foreign experience for its possible use in Russia for the benefit of the development of society and the state, the acquisition of new knowledge.

The 3rd Young BRICS Scientist Forum

Ms Albina Kutuzova

Institution: International Centre for Innovations in Science, Technology and Education (ICISTE) / Expert of International Programs

Tel: +7 925 170 62 47

Email: kutuzova@mniop.ru

Theme: Parallel Session on Social Sciences

Title:

Biography

Albina Kutuzova is a leading expert in the International Centre for Innovations in Science, Technology and Education. She is carrying out practical work, developing the implementation of the joint science and technology (S&T) programs and initiatives, including activities within BRICS STI Initiative. Now Albina is a postgraduate in the Diplomatic Academy of the Ministry of Foreign Affairs of Russia. Her scientific work devotes to investigation of the modern and effective mechanisms for supporting S&T cooperation within BRICS countries. Albina's research interests also lie in the field of international relations with an emphasis on scientific collaboration within the framework of global research infrastructures. She twice took part in the meetings of the Group of Senior Officials (GSO) which is the informal forum established by the G8 in 2008 to discuss and advance Global Research Infrastructures (GRIs).

The 3rd Young BRICS Scientist Forum

Mr Chekov Alexander

Institution: Moscow State Institute of International Relations

Tel: +79262474367

Email: a.d.chekov@gmail.com

Theme: Parallel Session on Social Sciences

Title:

Biography

Alexander Chekov is a lecturer and a postgraduate student at the Department of International Relations and Foreign Policy of Russia at the Moscow State Institute of International Relations (MGIMO). He is also a part-time lecturer at the Russian Presidential Academy of National Economy and Public Administration (RANEPA). At MGIMO and RANEPA, he teaches basic courses on international relations to undergraduate students. Alexander's research interests lie in the field of international relations with an emphasis on security studies. He started his scientific career in 2013 with a position of Educational and Training Program Coordinator at PIR Centre, one of Russia's leading independent think-tanks that specialize on issues of international security. In this capacity, he not only performed administrative duties, but also conducted research on the prospect for chemical weapons elimination in Syria. Moreover, he also coordinated a project entitled "Shaping Russia's Agenda For BRICS", under which he participated in preparation of the "Report on the Prospect of the BRICS Countries Security Cooperation", which was published in advance of the 2014 BRICS Summit at Fortaleza, Brazil. Since then Alexander has participated in a number of academic projects on the issues of arms control and cybersecurity, which correlates with the BRICS international agenda and has been related to the promotion of cooperation with scientists from BRICS countries. He also authored a number of pieces on

issues of missile defence, US-Russian strategic arms talks, international non-proliferation regimes, and Korean nuclear problem. During the 2016 Russian parliamentary campaign, Alexander advised several Russian politicians on issues of international relations.

Ms Krivokhizh Svetlana

Institution: The National Research University Higher School of Economics (Saint-Petersburg)

Tel: 89523831839

Email: skrivokhizh@hse.ru

Theme: Science, Diplomacy, Advice and Communication

Title:

Biography

Svetlana Krivokhizh is one of the most prominent young researches at the University. Her research focuses on Sino-Russian cooperation in various fields including science and culture. For her research paper on Soft power of China she was awarded first prize in International contest of RIAC for young scientists. One of her major assets is that she speaks Chinese language that helps her not only to write and read in Chinese but also to communicate with fellow Chinese scholars and engage in joint projects. One of the outputs is her article on China's and Russia's public diplomacy written in collaboration with young Chinese scholar from Dalian University Chen Wei. On the faculty she supervises student's research work on different topics related to cooperation within BRICS and development issues of the BRICS countries. Some of her students were awarded first prizes for their reports on Russian conferences. She also encourages students to conduct research on socially important and hot topics such as gender equality or environmental pollution. Svetlana actively participates in various international events in Russia and abroad that helps her to build international network of young scholars from BRICS countries.

The 3rd Young BRICS Scientist Forum

Mr Anikin Evgeniy

Institution: Moscow Institute of Physics and Technology (State University)

Tel: +7 (999) 998-93-91

Email: evgenii.a.anikin@phystech.edu

Theme: Youth Innovation and Entrepreneurship

Title:

Biography

Education:

- **2013 till now Moscow Institute of Physics and Technology MIPT (SU)**
  Faculty of Physics and Quantum Electronics FFKE. Department of Technological Entrepreneurship MIPT-RUSNANO. Direction: Applied Physics and Mathematics
- **2017 till now The Russian Presidential Academy of National Economy and Public Administration**
  Specialty: Management of technological projects

Achievements and awards:

November 2015 Changellenge Cup Moscow 2015 High Quality Award 15%

March 2016 McKinsey Business Diving 2016 round 2

June 2017 Bachelor degree. Dissertation topic: "Study of the Self-Noise of the angular motion sensor on the MET"

December 2017 Winner of the contest "Smart-Technocrat 2017" from the Foundation for Assistance to Small Innovative Enterprises in the Scientific and Technical Sphere

Project: "Low-noise seismic sensor for angular movements based on the MET". Received a grant of 500 000 rubles.

March 2018 The owner of the grant of the Moscow region

March 2018 The owner of V.Potanin's personal grant

March 2018 The holder of an advanced academic state scholarship

June 2017 Publication in IEEE Sensors Letters

- Evgeny A. Anikin ; Egor V. Egorov ; Vadim M. Agafonov, "Dependence of Self-Noise of the Angular Motion Sensor Based on the Technology of Molecular-Electronic Transfer on the Area of the Electrodes"

Work:

2016 till now Center for Molecular Electronics MIPT

Position: junior researcher Projects:

- Low-noise seismic angular motion sensor on the MET
- Digital seismic station with feedback on the MET
- Accelerometer for Structural Health Monitoring on the MET

Other activities:

- December 2017 Graduated with honors course «Commercialization of the results of research and development» on Coursera.
- December 2017 Graduated with honors course «System thinking» on Coursera.
- 2018 till now Business Incubator MIPT

The 3rd Young BRICS Scientist Forum

Ms Burilina Maria

Institution: Central Economics and Mathematics Institute of the Russian Academy of Sciences (RAS)

Tel: +792666666848

Email: maribu@mail.ru

Theme: BRICS Young Women in Science Dialogue

Title:

Biography

EDUCATION AND PROFESSIONAL EXPERIENCE

THE STATE ACADEMIC UNIVERSITY OF THE HUMANITARIES (GAUGN)

- 2006 — 2011 The faculty of the economy, student (Masters degree)

CENTRAL ECONOMICS AND MATHEMATICAL INSTITUTE OF RUSSIAN

ACADEMY OF SCIENCE (CEMI RAS)

- 2011 — 2014 Post graduate course
- 2012- PRESENT Research fellow

OCEAN BANK

- 2011 — 2012 Chief Professional Consultant legal entities, internet banking

TEACHING EXPERIENCE 2012— PRESENT

THE STATE ACADEMIC UNIVERSITY OF THE HUMANITARIES (GAUGN)

- Taught Information science to the faculty of the economy stage 1 students
- Created programs of work
- Planned and prepared lessons

RESEARCH SCIENTIFIC AREA: scientific and technological progress, import substitution, civil air fleet, civil aviation, innovative economy, investment activity, national security, the competition in the market of air transportation, economic efficiency, regional

economy, mathematical modeling, the economic analysis of aircraft industry, strategic planning.

Ms Pirozhkova Tatiana

Institution: Tombov State University

Tel: +7 915 876 9127

Email: t-s-pir@ya.ru

Theme: BRICS Young Women in Science Dialogue

Title:

Biography

Education

- Postgraduate students (2013-2018) G.R. Derzhavin Tambov State University, Institute of Mathematics, Physics and Informatics, Department of Theoretical and Experimental Physics. 01.04.07 Condensed Matter Physics
- Graduate Derzhavin Tambov State University, Institute of Mathematics, Physics and Informatics, Department of Theoretical and Experimental Physics, 01.2008-06.2013.

Work Experience

- G.R. Derzhavin Tambov State University a vice principal of Research Institute «Nanotechnologies and Nanomaterials», from 2017.
- G.R. Derzhavin Tambov State University an engineer of Research Institute «Nanotechnologies and Nanomaterials», from 2017.
- G.R. Derzhavin Tambov State University engineer of Research Institute «Nanotechnologies and Nanomaterials», a researcher, 2012-2018

Publications

- An author of 75 articles and abstracts.

- Web of Science and Scopus include 15 articles,
- h-index is 5,
- Citations are 69.
- Elibrary includes 46 articles,
- h-index is 5,
- Citations are 128

Additional Education

- Continuing education for the program «Theoretical and experimental foundations of microplasticity, fracture and accompanying phenomena in traditional and nanostructured materials», 27 June -2 July 2016
- Lecture course «Young teachers in the field of health» at the Russian Youth Educational Forum «Territory of meanings on Klyazma», 6-12 августа 2016 г.
- Participant of « Regional Practical Consulting Session » LOGA Group&Seed Forum International Foundation, 2016.
- Lecture course «IT-technology» at the Russian Youth Educational Forum «Territory of meanings on Klyazma» in 2015

Research areas

- nanotechnology, new research methods in micro- and nanoscale, mechanisms of deformation of materials, defects, nanostructured materials of new generation, nano- and microtribology;
- research of rocks as natural composites, development of techniques for rock diagnostics;
- development of new wear-resistant functional ceramics and composites;
- development and research of materials for medical and biological purposes

The 3rd Young BRICS Scientist Forum

Gapanovich Mikhail

Institution: Institute of Problems of Chemical Physics of the Russian Academy of Sciences

Tel: +79035005118

Email: gmw1@mail.ru

Theme: Parallel session on Energy

Title:

Biography

Education

2001-2006	Lomonosov Moscow State University, Chemistry department, diploma in chemistry
2006-2010	Institute of Problems of Chemical Physics of Russian Academy of Sciences (IPCP RAS), PhD degree in chemistry

Work experience

The field of my scientific interests is the development of the basics of synthesis inorganic thin films for new generation solar cells.

Sept. 2001 – Sept. 2006	Laboratory assistant researcher, part-time job, IPCP RAS
Oct. 2006 – Dec 2007.	Engineer, part-time job, IPCP RAS
Dec. 2007 – June 2008	Engineer-researcher, part-time job, IPCP RAS

June 2008 – Oct. 2009	Junior researcher, part-time job, IPCP RAS
Oct. 2009 – July 2010	Junior researcher, IPCP RAS
July 2010 – Dec. 2013	Researcher, IPCP RAS
Dec. 2013 - present	Senior researcher, IPCP RAS

International experience

2017-present	Participant of the joint project of Russian Ministry of Education and Science and Department Of Science & Technology, India (Institute of Problems of Chemical Physics of Russian Academy of Sciences, Chernogolovka Moscow reg. and Sri Venkateswara University, Tirupati, Andhra Pradesh, India). Agreement No. 14.613.21.0065, research topic: "Development of making technology of flexible semitransparent solar cells for building-integrated photovoltaics (BIPV) based on large-grained mono-grained CdS / CZTS powders
September 2014	Participant of 29th European Photovoltaic Solar Energy Conference and Exhibition, Amsterdam, the Netherlands.
May 2012	Participant of international conference «Thin Film & Advanced Silicon Solutions» Aix-en-Provence, France

	2010-2012	Participant of the joint project of Russian Foundation of Basic Researcher and Ministry of Science and Technology, Taiwan, research topic: "The preparation and depositing mechanism investigation of CIS/CIGS absorber layer for solar cells by the induced co-deposition"	

Mr Podlesniy Dmitry

Institution: Institute of Problems of Chemical Physics of the Russian Academy of Sciences

Tel: +79267800266

Email: dim1990@mail.ru

Theme: Parallel session on Energy

Title:

Biography

Podlesnyy D. was graduated from Omsk State Technical University, Faculty of Transport, Oil and Gas. In 2014 he defended his thesis on "Designing a coal-type gasifier with intensification of the combustion process" (the work was done at IPCP RAS). In parallel, from 2008 to 2011, he studied at the Faculty of Humanitarian Education and received the specialty "Interpreter in the field of professional communication" (English). In 2014, Podlesnyy, D. was enrolled in full-time postgraduate study of IPCP RAS, in the Department of Combustion and Explosion, the group of "Technological Combustion". At the present time Podlesnyy D. is a 4-year post graduate student. The subject of his candidate work is devoted to possible ways to improve the efficiency of gasification of low-grade fuels (including industrial and domestic waste) in the filtration combustion mode. The technology of gasification in the filtration combustion mode, developed at IPCP RAS, is built on a two-stage scheme. At the first stage gasification of solid fuel takes place in the reactor. In a

second step, the gaseous products obtained are burned in a conventional power device to produce thermal or electrical energy. An essential advantage of such technologies is the possibility of using relatively cheap off-grade fuels and some technological wastes in order to produce a combustible gas rich in CO and H2 – components of synthesis gas. When studying the processes of filtration combustion in a porous system containing a solid fuel and a porous incombustible material, with forced filtration of a gaseous oxidant, in a number of cases, the appearance and development of instability of the combustion front is observed. One of the reasons for the instability of the plane front of the combustion wave is a violation of the homogeneity of the filtration of the gaseous oxidant due to the combustion of the fuel from the initial mixture. The instability can also be determined by the difference in the filtration properties of the starting materials and solid combustion products. However, until now there has been no systematic study of the effect of the parameters under study (oxidant consumption, fractional and percentage composition of the mixture components), which limit the applicability of gasifiers of this type, which is the subject of the work. For the last years Podlesnyy D. a large amount of research work was done to find the stability limits of the FG front, as well as to study the physicochemical and gas dynamic characteristics of the fuel mixtures under study. The results of the work were published in 7 scientific articles, including in the international high-ranking journals "Fuel" and "International Journal of Hydrogen Energy", and were repeatedly presented at international and Russian conferences

Mr Pivinskii Igor

Institution: Rudn University

Tel: 8-916-345-456

Email: ipivinskiy@gmail.com

Theme: Parallel session on Science Diplomacy, Advice and Communication

Title:

The 3rd Young BRICS Scientist Forum

Biography

Education

- Peoples' Friendship University of Russia (RUDN)
- Engineering Academy of PFUR
- Institute of Space Technology
- Department of engineering business and management
- Specialty: Economics and Management

Language Skills:

- English: Intermediate B1
- French: A1 (DELF A1) Débutant (F1)

Professional interests:

- Analytical issues of enterprise economics, preparation of analytical reviews, data processing systems, marketing, IT management, messengers

Ms Akhmetova Assel

Institution: Advanced Technology Center

Tel: +79250926757

Email: assel1505@yandex.ru

Theme: BRICS Young Innovator Prize Competition

Title:

Biography

Higher education

2011 SpbSU, diploma with excellent

Knowledge of languages: Russian,(native), English (fluent), German (basic knowledge)

October 2016 to the present

The A.N. Belozersky Institute of Physico-Chemical Biology

Engineer of 1st category

Duties: Writing articles about scanning probe microscopy, biosensor technologies, Conducting experiments on probe and capillary microscopes, Presentation the abstracts of the dissertation, Participation in research works, preparation of research reports,

July 2015 to the present

Advanced Technologies Center

Leading Specialist

Curator of the Youth Innovation Creativity Center "Nanotechnology"

Duties: Presentation of the center at exhibitions and events, Preparation of articles on the subject of the center, Preparation of reports and indicators for monitoring the center.

July 2012 - February 2015

2 years 8 months: Radio Megapolis 89.5 FM: Program director

July 2008 - March 2011

2 years 9 months, Radio Record (ROSDENS) St. Petersburg,

November 2006 - July 2008

1 year 9 months

KORUS Consulting korusconsulting.ru

Information technology, system integration /-executive secretary of the editorial board of the corporate magazine

-writing articles on business topics,

-placement of the magazine at specialized events,

-subscription to the magazine,

-conclusion of agreements on information sponsorship,

-maintaining a log site (working in the Netcat site management system).

The 3rd Young BRICS Scientist Forum

Mr Dmitrii Semenok

Institution: Skolkovo Institute of Science and Technology

Tel: +7-909-225-60-97

Email: dmitrii.semenok@skolkovotech.ru

Theme: Parallel Session on Energy

Title:

Biography

Mr. Semenok is highly skilled to approach both experimental and theoretical problems. He is exceptionally organized, works independently with persistence to follow the job through. The applicant's original contribution to the above fields is quite broad. Presently his research interests encompass the areas of superconductivity of hydrides, organic synthesis, stereochemistry, physical chemistry, polymer science and materials science in general. Mr. Semenok has published 5 patents and 10 scientific articles of which 6 in international journals with high impact factors (e.g., Journal of Physical Chemistry, Synthesis, Tetrahedron Letters, etc.) and participated in more than 12 international conferences, workshops and forums for young scientists. His excellent publications are true reflections of his high level of experience and knowledge in physical chemistry and its applications. In summary, Dmitrii is a very talented scientist, who brings things to the end.

The 3rd Young BRICS Scientist Forum

Mr Lyapunov Alexander

Institution: Chita State Medical Academy

Tel: +7 (924) 810-07-00

Email: alexander_lyapunov@bk.ru

Theme: BRICS Young Innovator Prize

Title:

Biography

Education

- Clinical resident, the Department of Obstetrics and Gynecology, the Faculty of General Medicine and Dentistry, Chita State Medical Academy, 2017-2019
- Graduate of Chita State Medical Academy, the Faculty of General Medicine and Dentistry, 2011-2017. Academic progress 4.8 (from the maximum of 5.0). Red diploma. Specialty medicine physician.
- School №9 with in-depth study of biology and chemistry. A diploma with honors and a gold medal.

Publications

- Journal of obstetrics and woman's diseases (Saint Petersburg)
- Sechenov's vestnic (Moscow)
- Journal of Medicine and Education in Siberia (Novosibirsk)
- Transbaikal medical vestnic (Chita)

Conference

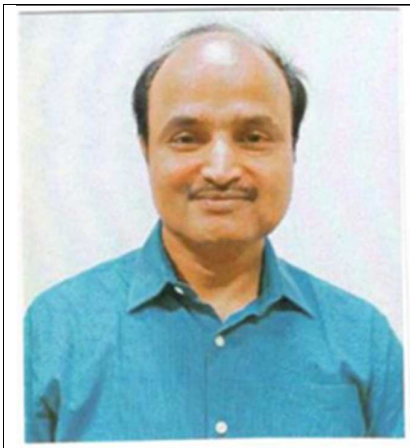
- Participation in the III Regional Exhibition of Scientific and Technical Creativity of Youth "STCY Transbaikal Region-2015" - 1 place in the nomination "Best research project" with the work "Prediction of the outcome of childbirth"

- Participation in VII Russian scientific and practical conference with international participation of students and young scientists "Avicenna-2016" (Novosibirsk) - 1 place in the nomination "The best scientific work of the student" with the project "One of the ways to predict the outcome of childbirth" (mathematical formulas and mobile app)
- Participation in the IV Regional Exhibition of Scientific and Technical Creativity of Youth "STCY Transbaikal Territory-2016" - 1 place in the nomination "Best research project" with the work "Modeling the biomechanism of childbirth"
- Participation in the Week of Youth Science "Actual problems of experimental, preventive and clinical medicine - 2017" (Vladivostok) - 1 place in the nomination "The best scientific work" with the project "The role of 3d modeling in the determination of the volume of amniotic fluid".

	Makarova Julia
	Institution: Hertsen Moscow Oncology Research Institute, Branch of the National Medical Research Radiological Center, Ministry of Health of the Russian Federation **Tel**: **Email**:
Theme:	
Title:	
Biography	

	Milshina Yulia **Institution**: National Research University Higher School of Economics **Tel**: **Email**:
Theme: Parallel Session on Water	
Title: N/A	
Biography	

India

	Shri Anuj Kumar Tripathi **Institution**: Senior P.P.S. Department of Science & Technology **Tel**: 011-26511439 & 011-26510068 **Mobile**: 9810261748 **Email**: anuj.tripathi@nic.in
Theme: N/A	
Title:	
Biography	

The 3rd Young BRICS Scientist Forum

Shri Anuj Kumar Tripathi, born in April 1965, graduated and post graduated in Political Science from University of Delhi. He started his career in the Government of India joining as Stenographer in the year 1985 Ministry of Industry. And since then he has worked in various capacities in different Ministries/Departments of the Government of India namely Department of Expenditure, Office of Controller General of Accounts, Ministry of Environment, Forests & Climate Change, and Department of Science & Technology. He has been working in Department of Science & Technology since October 2015 as Senior PPS to the Secretary, Department of Science & Technology.

Raj Kumar Sharma

Institution: Scientist-E

(Multilateral & Regional Cooperation Division)

Department of Science & Technology

Tel: +91-11-26537976

Mobile- +919810818274

Email: Sharma_rk@nic.in (official)

Rksharma1964@gmail.com (private)

Theme: N/A

Title:

Biography

Shri Raj Kumar Sharma completed his schooling from Rashtriya Military School (RMS), Ajmer (Rajasthan) and did his Graduation (B.Sc) and Post-Graduation (M.Sc in Mathematics) from University of Rajasthan, Jaipur (Rajasthan). He worked as Chemist during 1984-1986 in R&D and Quality Control Section of Ralson (India) Limited, Ludhiana. The main work responsibility at Ralson India Limited was analysis of Physical,

Chemical and Rheological properties of rubber and rubber compounds; coal, water, oil and various rubber chemicals. Shri Sharma also worked as Analyst at "Panipat Thermal Power Station (PTPS) "of erstwhile Haryana State Electricity Board (HSEB), Panipat during 1986-1988. He joined Department of Science & Technology (Govt. of India), New Delhi in July 1988 and has worked in various capacities. The work responsibilities include postings in International Cooperation Division, National Centre for Medium Range Weather Forecasting (NCMRWF), International Bilateral Cooperation Division, R&D Division (SAIF Scheme); and currently working in International Multilateral & Regional Cooperation (IMRC) Division of DST. During his posting in NCMRWF, he was involved in analysing data for medium range (3-5 days) weather forecast for agro application. In International S&T Cooperation Division, he was responsible for developing bilateral Science & Technology cooperation with countries viz Germany, Switzerland, Austria, Norway, Sweden, China, Vietnam, Pakistan, Bangladesh, Nepal, Hungary etc.; He was instrumental in establishment of Indo-German Science & Technology Centre (which supports collaborative projects between Academia and Industry), Creation of ASEAN-India S&T Development Fund (which supports ASEAN-India Collaborative R&D projects, ASEAN-India Research Training Fellowships, and ASEAN India Innovation Platform which includes technology development, transfer and commercialization projects between India and ASEAN MS) , Indian participation at Lindau Nobel Laureates Meeting in Germany, Indian participation in construction of Facility for Anti Ion and Proton Research (FAIR) at Darmstad Germany etc among other S&T schemes with partner countries. Mr. Sharma is, currently handling multilateral and regional cooperation program in DST. The programs include India-ASEAN, SAARC, BIMSTEC, IOR-ARC, NAM S&T Centre etc.

The 3rd Young BRICS Scientist Forum

Mr Abhishek Bhagat

Institution: Individual Innovator, Registered with National Innovation Foundation India and its National Awardee

Tel: 8285474532

Email: abhixs@me.com

Theme: Young Innovator Prize Competition

Title:

Biography

Abhishek Bhaagat has had an innovative mind since his childhood. He has developed a number of devises and conceived many useful ideas. He was invited by National Innovation Foundation – India to be the innovator-in-residence for a period of two months to work on the automatic food-making machine. During that time, he also made a scissor with a measuring tape. While cutting cloth with these scissors, you can see how much cloth you have cut (in inches or feet). So there is no longer a need to mark on the cloth. He is also interested in developing a smart watch that can be programmed for 12 hours to do general household work like switching on bulbs and other appliances. During his early years, Abhishek used to see his mother spending hours in the kitchen and cooking food for the entire family. Once it so happened that due to his mother's illness, he was asked to cook. He then for the first time realized how tedious the job really was for females to cook every single day. This motivated him to develop a machine for his mother, which could reduce the efforts to cook and was not even time consuming. Abhishek had the idea but he did not know how to convert it into a real machine. This is when he wrote to NIF which led him to innovate the World's 1st Automatic Cooking machine, ROBOCOOK.

The 3rd Young BRICS Scientist Forum

Mr Amarnath Pathak

Institution: National Institute of Technology (NIT) Mizoram, India

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Theme: Parallel Session on ICT

Title: *A Formula Embedding Approach to Math Information Retrieval*

Biography:

Mr Amarnath Pathak has been carrying out research in the domain of Natural Language Processing (NLP) and its applications since the time (01/11/2016) of his selection as Junior Research Fellow, in the Dept. of CSE, NIT Mizoram, for working on DST-SERB sponsored project entitled “An Application of Textual Entailment and Semantic Textual Similarity in Scientific Document Retrieval Systems”. Project falls under ICT research domain and it concerns retrieval of mathematical formulae from scientific document, a fascinating research topic which has grabbed researchers’ attention worldwide. He contributed to the domain in form of a novel substitution tree-based indexing technique and a math formula embedding based retrieval system which offer improved performance over conventional text-search based systems. Proposed methodologies and the system outcomes have been published in reputed journal and proceedings of reputed conferences. Machine Translation (MT), an application area of NLP, has also been one of my research interests. MT facilitates automated translation of text or speech from one natural language (say, English) to another (say, Hindi). It helps bridging communication barrier and eases interaction among people from different linguistic backgrounds. Thus, the role of MT in language divergent country, like India, becomes prominent. To this end, he has exploited Neural Machine Translation (NMT) and Statistical Machine Translation (SMT) techniques for machine translation of

major Indian language forms (such as, Hindi, Tamil and Punjabi) [1] as well as low resource Indian languages (such as Mizo) [2]. Besides, as a team member of my NIT-M team, he showed active participation and represented his team in Shared Task Cum Workshop on Machine Translation in Indian Languages (MTIL-2017). Out of a total of 5 participating teams, their Neural Machine Translation (NMT) based system secured first rank in English-Punjabi Machine translation and second rank in English-Hindi Machine translation. In a multilingual country like India, It is a common practice of social media end-users to include multilingual (also called, code-mixed) contents in their posts. Such code-mixed contents constitute important piece of information for wide ranging NLP applications, such as Sentiment Analysis, Sarcasm Detection, Named Entity Identification, Question Answering and Information Retrieval (IR). However, Part-Of-Speech (POS) tagging of code-mixed content is mandatory prior to its productive utilization in NLP application domains. To this end, a Hidden Markov Model (HMM) based POS tagger has been implemented for POS tagging of code-mixed Indian Social Media Text. One of my co-authored papers [6], describing implementation of HMM based POS tagger, fetched Third Best Paper Award at International Conference on Social Transformation-Digital Way , Science City, Kolkata, Jan 19-21, 2018. Moreover, during my postgraduate research (2013-15), he researched on the role of evolutionary algorithms (particularly, Ant Colony Optimisation) in extracting exceptions along with the classification rules, from the given training data [7-10]. Discovery of exceptions adds interestingness to the rules and it provides an opportunity to amend one's decision under exceptional circumstances. Mr Pathak has peer reviewed 10 publications.

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Mr Anang Tadar

Institution: NEW GALAXY ACADEMY (School), Innovator registered with National Innovation Foundation – India

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Theme: BRICS Young Innovator Prize Competition

Title:

Biography:

Anang has passed the Higher Secondary School (10+2) exam in 2018. He has been a very keen observer of problems based on which he comes up with innovative ideas to solve them. He hails from a remote district in the North Eastern part of India where access is poor and resources are meagre. Notwithstanding the constraints, he has always tried to come up with ingenious solutions to the problems he sees around. Anang's innovative approach in solving the problems faced by the visually impaired people can be seen through his device goggle for blind. How he use the technique of the nature to solve the problems faced by the blind. His innovative approach of using the technique of the echolocation used by the bats to solve the problems faced by the blind people. How he salvaged parts of the thrown away electronics to develop his first prototype and earlier prototypes. He have has innovative approaches to solve the problems in daily life through sustainable ideas.

Anang Tadar has developed a device called G4B (goggle for blind) which uses the principle of echolocation used by the bats to help the visually impaired people to navigate around with ease. The goggle have ultrasound sensors and infrared sensors which helps the wearer

to locate the obstacles ahead. The wearer knows about the distance and the direction of the obstacle by wearing the glass. This device will be an aid for the blind people who are really unaware of most of the obstacle lying in front of them. The cane stick they used is limited to detect obstacles below their knee and fails to detect the overhang and other obstacle. But with the help of this device blind people really get to have more awareness about the various degree of obstacle which help them to eliminate bumping against obstacle like signboard, electric poles branches of tree etc. We see almost every blind person wearing a goggle or a sunglasses even they can't see through it. They wear it so to musk their injured eyes or to simply let others know that they are blind. The approach is very simple. Why not put in the modern electronics and sensor in the same thing that they are wearing which would actually help them in real life to see the obstacles virtually. Through this device Anang would like to make the life of the visually impaired people easier. The technology has been standardized and tested in real life situations. The innovation has already gone through a few iterations of feedback generation and product enhancement. NIF is working with the innovator for undertaking marketing/commercialization activities through the NIF Incubation and Entrepreneurship Council (NIF-ientreC), a Technology Business Incubator.

Dr Thokchom Binota

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Theme: Parallel Session on Water

Title: *Advance technology development for wastewater treatment*

Biography:

So far, Dr Binota harnessed emerging technologies to explore environmentally friendly alternatives for decontaminating polluted water. A practical concept on interfacing nanotechnology with sono-electro-reactor engineering to improvise innovative solutions for resolving energy and water related issues were already addressed through my research works, promising a sustainable solution to resolve the on-going water-energy nexus. Through this work, he has received recognitions like Young Scientist Award, Best Paper Award etc. Recently, based on this proposal which also include building a portable water treatment system, he has been selected for INSPIRE FACULTY AWARD. Besides, he has a background of collaborating a part of this work with Prof Dongyuan Zhao, Fudan University, China, and a leading institute in Nanotechnology & water treatment. They have published research journal together. Pengpeng Qiu who did Ph D with him at Korea University is a Post-Doctoral Fellow at this university now. This university also offers BRICS Programme. He has visited China in 2014 along with him and a Chinese Post Doc. In fact, they can be regarded as the bridge, a networking platform for BRICS young scientists. Besides, he was a representative of Young Women Scientist (YES), Seoul Chapter, where he was leading all the young female foreigners from science background from all countries, but living in Seoul to gather up together and work in a common platform. Dr Binota has peer reviewed in more than 10 publications.

Dr Debayan Dhar

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Theme: Parallel Session on Social Science/ICT

The 3rd Young BRICS Scientist Forum

Title:

Biography

Dr Debayan Dhar has been working in the area of Interaction design since his post-graduation days. His research interests lie at the intersection of technology, design, and social sciences. He is interested in applying the principles of communication theory, social psychology and human-computer interaction in designing technologies that improve our overall well-being. After my post-graduation in Design from IIT Guwahati, he worked for a brief stint with Estuary Labs in design and development of world's first web based carbon footprint applications. Thereafter he joined IIT Guwahati as a doctoral scholar and worked in the area of Instructional design. His doctoral studies were instrumental in identifying the effect of cross cultural markers and interface design on the performance of students in web based assessments. Based on this study he was awarded with the Fulbright-Nehru Doctoral fellowship and conducted a part of his experimental studies at various American universities, specifically at the University of Texas at Austin.. In 2017, he joined my Alma mater IIT Guwahati as an Assistant Professor of Design; currently he is collaborating with many researchers across University of Oslo and Georgia Tech in investigating the role of cross-cultural collaboration in design thinking and problem solving activities specifically in the context of HCI and ICT. Recently he has played a major role in establishing a MOU between IITG and Quercus Group, Copenhagen for conducting research specifically in the areas of Smart cities. Though he has been regularly following and collaborating with European and American universities, he has only followed works of researchers from BRICS nation specifically China and Brazil. Dr Dhar has peer reviewed more than 10 publications.

The 3rd Young BRICS Scientist Forum

Dr Deepika Kandoi

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Theme: Theme: BRICS Young Women in Science

Title:

Biography:

My research interest is in increasing the plant productivity to provide adequate food and nutrition to the global population that is expected to reach 9 billion by 2050. As growing population and global climatic changes place increasing pressure on the world's food supply, it is essential that we continue to improve crop performance in terms of grain productivity to keep pace with population growth. Rice, a key staple food, need to increase the yield by at least 60% to feed the globe. But, rice requires lot of water to grow, about two and a half times the amount of water needed to grow a crop of wheat or maize. One estimate says that all the rice land receives 35–45% of all the world's irrigation water. Thus, rice is often portrayed as a "profligate" user of water. Recently an attempt is underway to increase the rice grain productivity as well as the yield potential by genetic engineering. If C3 crop can be converted to C4 photosynthesis, its yield would increase by 50% while using half the water. C3 plants can capture and store a theoretical maximum of 4.6% of the energy received in sunlight, whereas C4 plants could theoretically capture 6% thereby addressing global warning in their own way. My work on genetically transformation of C3 plant (i.e. Arabidopsis and Rice) into single cell C4 plants has greatly been appreciated in the light of changing world which will require higher photosynthetic efficiency and less water consumption for our plants (Kandoi et al., 2016). I have overexpressed individually and in combination of two cDNA for all the gene of C4 pathway in a model C3 plant Arabidopsis

thaliana to achieve higher photosynthetic efficiency and tolerance to salinity and drought stress. Dr Deepika Kandoi has peer reviewed 9 publications and participated in numerous international forums.

Mr Dipesh Kumar

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Theme: Parallel Session on Energy

Title:

Biography

Energy is a critical input for socio-economic development and the overall growth and prosperity of a nation is dependent on abundant, cheap and environment-friendly energy resources. I have been working on various aspects of bioenergy (primarily on the development of biodiesel) as an indigenous, alternative, clean and renewable form of energy. I have worked on the development of biodiesel from non-edible vegetable oil resources using novel and environment-friendly heterogeneous catalyst. Large-scale commercialisation of biodiesel is hampered by its inferior fuel properties such as poor oxidative stability, corrosively and low-temperature operability. One of my research objectives is to improve these properties of biodiesel using environmentally benign approaches. In order to achieve this objective, I have attempted various strategies such as utilisation of plant extract as an additive, winterisation etc. Preliminary investigations have yielded promising results, and the findings have been communicated in reputed journals for publication. In addition to these, I have also done extensive literature survey on the prospects of algal biofuels for meeting the ever-increasing demand for fuel. The findings of

the study have been published in the form of scholarly review articles and book chapters. We are also trying to identify policy challenges and lacuna in development of biodiesel industry in India. Further, I am in touch of few researchers from BRICS nations, and we have been working together to develop a research proposal aimed at addressing some of the pressing challenges in the development of bioenergy and biorefinery. Mr Dipesh Kumar has peer reviewed 9 publications and participated in numerous international forums.

Dr Ganapathy Veerappan

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Theme: Parallel Session on Energy

Title:

Biography:

Renewable energies have turned out to be an attractive option in meeting the energy demands in sustainable and affordable ways. At present, the amount of electricity production is not able to satisfy the global energy demands. Tens of giga-watts of wind turbines, hydropower generators and solar photovoltaic modules are installed worldwide. It is anticipated in the future that about one-thirds of the energy generated would be from solar photovoltaics (PV) technology. Of all the renewable energies available, solar PV is dominant with an annual growth rate of 60% between 2000-2016. Perovskite solar cells occupy a significant share in solar PV, since it can function at diffused light (low-light conditions), low cost fabrication, simple device fabrication, high efficiency and versatility

in product integration. Even though the efficiencies of PSC are in par with the established Si solar cells, Apart from energy conversion efficiencies, stability and economic processing of the PSCs play vital roles. To commercialize PSCs, it is mainly hindered by the issues related to the (organic) HTM, perovskite stability, device architecture and protocols for large-scale development of PSC need to be taken into account. For the past 11 years I have been working on renewable energy (various solar cells) and developed novel semiconducting materials, new device architectures, catalyst, gel-electrolyte, inorganic hole transport material, prototype modules and panels. After joining as a DST-INSPIRE Faculty in ARCI, I had carried out extensive research in perovskite solar cells in a way to develop stable perovskite and novel materials for commercialization of this technology. I am also playing a pivotal role in formulating a couple of projects related to development of product based on PSC. Here, my primary goal was to translate solar cell research into solar cell technology for commercialization. So far I have published 28 research papers with Impact factor of 170, 4 book chapters and 1 International Patent in the field of solar cells and a number of presentations in International Conferences. I firmly believe that the experience I acquired in this course of time will help me to extend this to real marketable products for harvesting indoor light is highly essential. Being a young scientist, I am in the process of building up a strong relationship with various research groups among BRICS countries. If selected I strongly believe that this will help me to strengthen the Solar Photovoltaics activities which I currently pursue at ARCI which ultimately leads to strengthening of my role in government's initiatives towards a sustainable India.

Dr Ramu Gandikota

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Theme: Parallel Session on Social Science/ICT
Title:
Biography My main goal is to strengthen the healthcare sector using advanced technologies. I focused on Electronic Health Records (EHRs) security requirements for storing, searching, accessing, sharing, and auditing in Cloud Healthcare Monitoring System (CHMS). Recently, I received a ECR project worth 40 lakhs from DST-SERB entitled "Precision Medicine using Cognitive Computing (PMCC): A Tool to Predict Chronic Diseases and Recommend Personalized Treatment Just-in-time". Precision medicine is an emerging approach for disease treatment and prevention that takes into account individual variability in genes, environment, and lifestyle for each person. This approach will allow doctors and researchers to predict more accurately, which treatment and prevention strategies for a particular disease will work for which groups of people. The cognitive computing is the simulation of human thought processes in a computerized model. Cognitive computing involves self-learning systems that use data mining, pattern recognition and natural language processing to mimic the way the human brain works. This project's main aim is to predict the future disease of a particular person based on his/her health data and recommend precise personalized treatment at right time. Although, I have good knowledge on bio-medicine in the field of healthcare sector, I need some inputs from the scientists who are working in this area from various countries. Hence, I seek cooperation with scientists from other BRICS countries to strengthen research in this field of healthcare sector. Dr Ramu Gandikota has peer reviewed in 12 publications.

The 3rd Young BRICS Scientist Forum

Mr Gaurav Shukla

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Theme: Parallel Session on Social Science/ICT

Title:

Biography:

My current research addressed the complexity and interconnected linkages between critical soil-landscape parameters (i.e. below surface: soil moisture, at surface: soil class, above surface: crop cover) to provide smart solution for resource management. This work involves the development of an effective framework for retrieve of critical soil-landscape parameters using space based technologies: remote sensing and GIS. Six environmental covariates i.e. climate, organisms, topography, parent material, time or age, soil or soil properties, and relative position; are developed using different satellite data and climatic data. Effective statistical/machine learning approaches is optimized for predicting soil-landscape parameters. Developed modelling approach for digital soil mapping offers a quantitative approach as an alternative to traditional soil mapping and it will expedite the mapping process. This study also provides insight into the use of prominent regression techniques, as a spatial surface soil moisture model over an agricultural land. I have published my some of the dissertation findings in reputed journals (SCI indexed) and research would benefit not only city planner (government bodies of BRICS nations) but also helps farmers for smart farming. By selecting the right crop for the given soil conditions, moisture condition and climate, farmers can optimise yields and save water requirements for irrigation. Mr Gaurav Shukla has peer reviewed 9 publications.

The 3rd Young BRICS Scientist Forum

Dr Harshal Kumar

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Theme: Parallel Session on Energy

Title:

Biography

My research during PhD & publication of several research in peer reviewed journal involved detailed studies on BIO-ENERGY CROP JATROPHA. Utilisation of Jatropha curcas oil as a new source for diesel engine has tremendous scope in contributing to the growing needs of energy resources in the country. Despite some studies on some Jatropha curcas provenances, a systematic documentation of morphological, physiological and biochemical characteristics of Jatropha curcas seed available in different agro climatic regions in INDIA, is lacking. Many specific questions about its production, commercialization and genetic improvement work was still in their infancy. No work on genetic improvement aspects of this species was taken up so far in India. Systematic provenance trails at different locations have not yet been carried out with Jatropha curcas in India and to the necessary extent in the world. The material from the centre of origin has not been sufficiently screened (Heller, J) at the global level, information on genetic improvement of J. curcas is restricted to a few publications. Moreover before exploiting any plant for industrial application, it is imperative to have complete information about its seed morphology, physiology and biochemistry so that the potential of plant could be utilized maximally. Obtaining optimal yields of Jatropha curcas is dependent upon a variety of things including the use of improved germplasm (selected for optimal yield of nuts with an optimal amount of oil) and matching the germplasm to sites with fertile soils and adequate moisture that will allow it to express its genetic potential to produce optimal yields. Thus, the main accomplishment of my research

was a step towards filling this knowledge gap about morphological, physiological and biochemical characteristics of Jatropha curcas seed and also to identify the better germplasm. This finally led to the selection of best variety for production of supreme quality Bio-fuel. Around 400 citations have been executed throughout entire PhD research & more than 20 research articles about Bio-energy crop which got possible through collaborating, consulting & studying with other BRICS countries scientist work. Dr Kumar has peer reviewed more than 20 publications.

Mrs. Harsha Vasudevan Pillai

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Theme: Parallel Session on Social Science/ICT

Title:

Biography

There is a thoughtful incompatibility between the growing traffic volume and the availability of resources to support the traffic. Some of the key reasons for this mismatch are rapid development of our economy, amplified affordability of our society, multiple vehicles per family, and so on. We believe that this incompatibility will continue to grow and adversely affect our traffic infrastructure unless an effective traffic management solution that includes security are developed and deployed. My research is a step in this direction. The end product of research will be an efficient secured traffic management scheme which will deploy significant amount of automation in a cost-effective manner. Since the communication component of the scheme uses a mixture of wired and wireless

channels, my security mechanism will protect it from security threats, which will bound to happen. My investigation and solution development will keep in mind the secure communication, secure routing, state of our transport fabric (city roads, highways, intersections, etc.) and traffic management policies to make our solutions easily deployable. Internet of Vehicles (IoV) is a vital part of the knowledge city, is a composite integrated network system, which links different people within automotive, different automotive and different atmosphere records in cities. The IoV will be a scattered transport fabric skilled to make its own assessments about driving consumers to their destinations. It is an integrated network for supporting secure communication, secure routing, intellectual traffic management, intellectual lively information service, and intellectual vehicle control. The IoV will have a distant reaching impact on the user vehicle market, user lifestyle, and even ways of behaviour. The innovative era of the Internet of Things (IoT) is motivating the progress of conventional Vehicular Ad-hoc Networks into the Internet of Vehicles (IoV). With the quick improvement of computation and communication technologies, IoV potential huge profitable interest and research worth, thereby fascinating a large number of companies and researchers. An efficient and secure communication in between the IoV components is my core concern. For that, am using some cryptographic techniques for secure authentication and communication in between IoV components. Apart from that, different types of communications are focused. As an evaluation factor, I analysed through different perspectives. One of them is “Energy Consumption”, where am focusing to develop the protocols which uses less energy from nature and performs well. Besides that, communication, storage and computation cost are used as comparison parameters. Mrs. Pillai has peer reviewed more than 10 publications.

The 3rd Young BRICS Scientist Forum

Mr Ikhlaq Hussain

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Theme: Parallel Session on Energy

Title:

Biography

The research work provides 24 hours of electricity supply to every house in BRICS using solar energy. As per the records of World Bank and Washington post, still a quarter of the population of India is living without regular or reliable supply of electricity. Many of these people are staying at remote locations and it is economically and technically difficult to establish a transmission network for them. Moreover, with increasing demand of electricity, it is getting difficult to provide 24 hours continuous supply because of limited generation capacity. Establishing more thermal, diesel plants will lead in increased generation capacity, but also induces pollution and increased dependency on non-renewable sources of energy. The most feasible solution to reduce the pressure on the current grid system and to supply electricity to remote locations is 'distributed generation' using renewable sources of energy. The most common renewable source is solar energy because of its wide availability and affordability. However, due to the uncertainty in solar insolation levels, the system is not self- sustaining. For the system to be self- sustained, battery storage is added to the system. The excess energy is stored in battery backups and utilized during the absence of solar power generation. During high load demand, the battery is discharged to the load in addition to the power fed by the solar PV array. During light load conditions, the excess solar PV power is used to charge the battery. Therefore, this islanded system constituted by solar PV and battery provides continuous supply to the load, even in the absence of grid, thus can be

easily employed in rural and remote localities. Moreover, in the current grid system, a consumer is highly dependent on the utility provider. The utility providers without any say of the consumers decide the electricity rates. With the installations of solar panels at the consumer end, the consumer can also sell the excess generated electricity to the grid, and thus can easily participate in the energy market. For the grid-connected- solar PV- battery system, the excess solar PV is fed back to the grid in fixed power or variable power mode. In fixed power mode, a constant amount of power is fed to the grid, even if the load changes, the load power change are managed by charging/discharging the battery. In variable power mode, the grid is supplied by variable power. During high load demand, the load is supplied from solar PV and grid simultaneously. Therefore, a dynamic electricity market will develop and flourish with more and more consumer participation and consumers can earn profits through this. Mr Hussain has peer reviewed in more than 100 publications.

Dr Nitin Maurya

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Theme: BRICS Young Innovator Prize Competition

Title:

Biography

Dr Nitin Maurya is a Scientist C/Innovation Officer at National Innovation Foundation – India and heads the Dissemination and Social Diffusion department of the institute. He is also the Regional Coordinator, National Innovation Foundation – India (NIF) Guwahati Cell for the North Eastern region of India. Holding a Doctorate in Physical/Biological Anthropology from the University of Delhi, Nitin Maurya has been working in the

grassroots innovation space for over twelve years now. He has travelled extensively across the length and breadth of India, searching creativity at the grassroots, building case studies on grassroots innovations and exploring appropriate linkages to take these innovations forward in the value chain. He has contributed majorly to the publications of books, articles, papers at the National Innovation Foundation-India (NIF). He has also published 21 papers, case studies and articles nationally and internationally. He is also an Expert Member of the Scientific Research Advisory Committee of Department of Science and Technology, Government of the Indian state of Meghalaya; Member, Working Core Group in Action Research for Green Building Technologies/ innovations, Government of Indian state of Meghalaya and Member, Working Core Committee for implementation of project "Setting up of Living Root Bridge Museum and School", Government of Indian state of Meghalaya. He has also been a National Talent Scholar (NCERT) and the recipient of Junior and Senior Research fellowships of the Indian Council of Medical Research (ICMR). Dr Nitin Maurya coordinated the Annual National Competition of technological ideas of school students' during 2008-14 – the IGNITE competition of the National Innovation Foundation – India. He has served on the National Jury of the 'Take Care Take Charge' competition of the Times of India and Garnier India on Environmental Innovations in 2011. Dr Maurya is now associated with Department of Science and Technology, GoI's INSPIRE MANAK scheme and has served as a Jury in State level competitions. He has also been on the jury of many other science, technology and innovation competitions of schools and engineering colleges at State, Regional and National level.

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Mr Pardeep Singh

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Theme: Parallel Session on Water

Title:

Biography

Increasing urbanisation and industrialisation to raise the living standard of human population has increased the environmental pollution many folds. It has resulted in huge generation of wastes simultaneously, which contaminated our natural resources such as soil, water and air. There is a need for sustainable technique that is use full for the remediation of present problem. So I am working on the water and waste water treatment technology through the biological route and photodegradation processes because the amount of recalcitrant pollutants are increasing day by day. I have also done the monitoring of ground water quality at various part of Varanasi, India and try to identify the main pollutants in my master thesis. During my Doctoral research I am working on the advance technique for the treatment of organic pollutants, in water mainly focus on dye and petrochemical industries and published 10 paper from my doctoral thesis. In photodegradation processes we use nanomaterial as catalysts for degradation processes. But many times these Nano catalysts are also create the toxicity to the environment to understand the effects I also work on interaction of nanomaterial's on seed germinations of plants and founds amaphogous results. With majority of treatment techniques for wastewater treatment having major drawback of generation of another type of wastes, biodegradation and photocatalytic

mineralization looks a very promising techniques. Overall, I strongly believe that there is a need to scale up this degradation technique from lab to land scale. For industrial wastewater treatment, there is a need to develop hybrid processes of photo-degradation followed by biodegradation. The hybrid technique may be sustainable in all respect (economic as well as environmental). There is a possibility to develop hybrid techniques based on these two existing processes for more efficient degradation of organic pollutants. I strongly believe that the BRICS young scientist conclave provide me a international platform to interact with the various young scientist of international repute and mutual sharing of the ideas on recent trends and strategies in the field of water resource conservation and waste water treatment. Mr Singh has peer reviewed more than 30 publications.

Mrs Pinki Rani Agrawal

Institution: CSIR-National Physical Laboratory, Dr K.S. Krishnan Marg, New Rajendra Nagar, New Delhi

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Theme: Parallel Session on Water

Title:

Biography

Research Interest: Development of various carbon based materials for water purification.

Education:

- Presently pursuing Ph.D from Academy of scientific Innovation and Research(AcSIR), CSIR-NPL campus on proposed topic ‘development of phenolic resin based carbon foam for efficient removal of Arsenic from contaminated water’

- MSc. (Chemistry, specialization organic chemistry) from Agra college,Agra, Dr. BhimRao Ambedkar University, Agra with 66.9% .
- BSc. from Agra College, Agra, Dr. BhimRao Ambedkar University, Agra with 56.83%.
- 10+2 passed from G.S.K.Int Coll Kiraoli Agra with 71.8%.
- 10th passed from S.A.S.HR SS Rojholi, Agra with 70.83%.

Working Experience:

Presently working in Advanced Carbon Products, CSIR-National Physical laboratory, New Delhi, on synthesis of low cost and light weight carbon foam and their composites using sacrificial template technique and their application in EMI shielding and water purification like remove the heavy metal, Oil(crude oil, petroleum oil, mustard oil etc),dye etc. Also, have working experience in lab synthesis of carbon nanotubes, carbon nanofibers by electrospinning and graphene by chemical method. Mrs Agrawal has peer reviewed in more than 7 publications.

Mrs. Pooja Devi

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Theme: Parallel Session on Water

Title: Carbon Nanolights for Water Pollutants Monitoring

Biography

Mrs. Pooja is working as a Scientist at CSIR-CSIO, Chandigarh. She received her Ph.D. from Academy of Scientific and Innovation Research, New Delhi in 2018; and is a recipient of several prestigious awards including ACS-PITTCON Travel Grant from American Chemical Society to visit Orlando, USA; Canadian Common Wealth Graduate Exchange Program Fellowship and MHRD fellowship to pursue M. Tech from Indian Institute of Technology, Roorkee. She is the first rank holder in her graduation and post-graduation studies and qualified various national/international examination like GATE, TOFEL, GRE etc. She has received 8 best poster/oral presentation awards in various national/international conferences and coordinating various outreach programs for the promotion of science/technical hands-on through CSIR-JIGYSA, FTAMP programs and Technical Workshops at CSIR-CSIO, Chandigarh. The worldwide declining level of water resources for human consumption make it necessary to conserve our existing resources and maintain them in terms of quality and quantity. The increasing contamination of these resources through geogenic and anthropogenic activities necessitates the on-site and regular monitoring of water quality/pollutants parameters. Her research work contributes towards the applied domain of water pollutants monitoring, wherein we have designed and developed water pollutant-specific sensors material and systems for arsenic, selenium, fluoride, chromium, etc., detection in water. The developed knowledge protocols have been translated into field deployable opto/electrochemical devices, which are at TRL 6 and are under rigorous testing. Besides, harvesting solar and water resources for clean fuel generation is another domain of Dr. Pooja's research, which involve investigating novel nanostructures for energy harvesting application, in particular the development of the efficient and stable photoelectrodes for Photo-electrochemical (PEC)/ Photocatalysis (PC) water splitting and solar cells. In above sectors, she has strongly collaborated with several internationally renowned groups in Canada, Spain, and China, which results in several joint publications in reputed journals. She has authored 02 books, 36 papers in peer-reviewed international journals and 24 in conference proceedings, which shows her dedication and high standard of research. She is serving as a reviewers in various high impact factor SCI Journals. She has delivered 12 invited and oral talks in various academic/research institutes and national/international conferences. She has recently demonstrated a cost-effective, environmental friendly, efficient, stable and effective carbonaceous nanostructures based

probes (optical and electrochemical) for the Arsenic and Selenium detection in water to trace level above WHO safe limit. Further, she along with her team is in the final stage to demonstrate the prototype for the portable sensor for As and Se detection, which will be a path step ahead in this direction of the investigation. Furthermore, she has also developed the efficient and stable photoelectrodes based on III-nitrides nanostructures for the hydrogen fuel production from water via PEC water splitting. The work is communicated in high impact journal.

Dr Priyanka Pandey

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Theme: Parallel Session on Water

Title:

Biography

. My initial research aims to gain a detailed understanding of how to fabricate advance Dye Sensitized Solar Cells (DSSCs) with improved photoelectron conversion efficiency (PEC) to control organic electrolyte evaporation without extra effort and modification at room temperature. To this end, I have developed a Quasi-Solid-State DSSCs namely Electrospun Polyvinylidene Fluoride-Polyacrylonitrile membrane with their composite silicon dioxide and iron oxide, which exhibited good photovoltaic efficiency. But photovoltaic efficiency faces many challenges and it includes economic costs, technical development and cheap public energy. With the growing needs of the renewable energy, Quantum Dots Sensitized Solar Cells (QDSSCs) could help in reducing peak load demand and offer an alternative energy source. I place a particular emphasis on understanding how the QDSSCs precise structure would be helpful for enhancing the solar cell efficiency. Specifically, I investigated

earth abundant (metal chalcogenides) semiconductor QD, which is non toxic and environmental friendly. These platelets having good energy band gap with TiO2 incorporation. The preliminary studies show good PEC and may be needful alternative of economical energy resource. In addition, I also understand textile waste water treatment and their management using bio-adsorbent e.g. dried powder of edible mushroom (Agaricus bisporous), Bengal Gram Husk and Tur Daal Husk towards removal of cationic and anionic dyes. As a material scientist, I struggle towards making an impact on improvement on low-cost energy source for society. While getting research support and experience from CSIR and DST and currently Women Young Scientist (WOS-A) award has encourage me to do better. My curiosity and BRICS thematic discussions (energy and water) are the fundamental reason that motivates me to attend the 3rd BRICS Young Scientist Conclave, Durban, South Africa, 2018. This opportunity and my related research experience will help me to establish networking among BRICS young scientists and would be a proper high-level platform to improve my skills, strategic research of future technologies in the area of water and energy towards meets the demands of societal use. Dr Pandey has peer reviewed more than 15 publications and participated in numerous conferences.

Mr Rahul Sahebrao Sutar

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Theme: Parallel Session on Water

Title:

Biography

Research and Professional Interests:

Natural Wastewater Treatment, Environmental Management, Sustainable Development, Technology Assessment, Rural and Urban Development, Sanitation

Educational Qualifications:

- Ph.D. (Pursuing), Environmental Science and Engineering: Indian Institute of Technology Bombay (IIT Bombay), India
- M.Tech (2012-14). (Green Technology),: Institute of Chemical Technology, Mumbai, India
- B.E. (2008-12) (Biotechnology): KIT's College of Engineering, Kolhapur, Maharashtra, India

Academic Achievements:

- Awarded "Shivaji University Merit Scholarship" in 2009 for the Rank #1 in University
- First Rank in B.E. Biotechnology in Shivaji University for the year 2012
- Qualified 2012 Graduate Aptitude Test in Engineering (GATE, 2012)
- Qualified 2013 Graduate Aptitude Test in Engineering (GATE, 2013)
- Qualified 2014 Graduate Aptitude Test in Engineering (GATE, 2014)

  Second Rank in M. Tech (Green Technology) at ICT Mumbai in 2014
- Won the "Best Paper Award (Second Rank)" for the paper entitled: "Would the persistence of micro-pollutants compromise reuse options for the treated wastewater?"; authored by Sutar R. S., Motghare V. M., Kollur S. C., Parikh Y. and Asolekar S. R. at the National Conference i.e. EMAPCO 2015 organized by the SIES Educational Campus in Navi Mumbai, Maharashtra during Dec 10th and 11th, 2015.
- Received the "Young Researcher Award" in the recognition of contribution in the field of Science, Engineering and Technology at the 3rd International Conference on Recent Advancements in Chemical, Environmental & Energy Engineering

(RACEEE 2018) at SSN College of Engineering, Chennai, Tamil Nadu during 15th and 16th February, 2018.

- Won the "Best Paper Award" for the paper entitled: "Rate Constants for the Removal of Pollutants in Wetlands: A Mini-Review" authored by Sutar R. S., Lekshmi, B., Kamble, K. A., and Asolekar, S. R. at the 3rd International Conference on Recent Advancements in Chemical, Environmental & Energy Engineering (RACEEE 2018) at SSN College of Engineering, Chennai, Tamil Nadu during 15th and 16th February, 2018.
- Scholarship from the University Grants Commission (UGC), India for Masters Programme
- Teaching Assistant Scholarship from the Ministry of Human Resource and Development, India for PhD Programme

Dr Rangabhashiyam Selvasembian

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Theme: Parallel Session on Water

Title:

Biography

The pollution of water bodies due to the discharge of untreated effluent from industrial sectors is the major concern. The wastewater management from industrial effluent offers potential application in industrial reuse, agriculture production, improves ground water and

mitigate to some extent of adverse climatic change. The research area of biosorption of toxic heavy metals and organic dyes using eco-friendly biosorbents sourced from lignocellulosic biomass residues and macroalgae performed. The toxic heavy metal, hexavalent chromium ranked within the top 20 contaminants studied for removal using the first time explored biosorbents such as Swietenia mahagon shell, Ficus auriculata leaves powder, Caryota urens inflorescence, Sterculia guttata shell and Enteromorpha sp. The removal of hexavalent chromium investigated in the batch followed with dynamic system. In the dynamic system, the biosorption of hexavalent chromium studied in both simulated and electroplating industrial effluent. The sequestration of synthetic toxic organic dyes, such as methylene blue and malachite green from aqueous solutions tested using the biosorbents of Carica papaya wood, Pterospermum acerifolium shells, Cladophora sp, Musa sp. peel and Aegle marmelos shell, respectively in batch system. Further reuse of biomass checked using desorbing agents. The interference of ions to the biosorption examined in a binary biosorption system. With the research expertise of wastewater treatment, I have published 20 articles of research and review type as first/corresponding author. The water crisis and climate change are the major as well the common issue in the developing country, since the major country economy deciding sector-agriculture depends on water. China, India and Brazil are higher victims due to water pollution. One of the thematic areas of 3rd BRICS Young Scientist Conclave "Water" will bring the entire BRICS nation to a common platform for finding sustainable solution for the water problem existing worldwide. Dr Selvasembian has peer reviewed numerous publications.

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Mrs. Rishemjit Kaur

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Theme: Theme: Parallel Session on Social Science/ICT

Title: *Understanding morality using online conversations*

Biography

My work is in the area of ICT amalgamating computer science, mathematics and human behaviour. One aspect of my work is to develop ICT tools in understanding the human moral behaviour and equipping the machines with the ability to make moral decisions from human's perspective. I have done significant work in this direction using social media footprints and found the basic dimensions/structure of morality across which the behaviour can be modelled as well as predicted. My findings answer the question to long-standing debate of morality pluralism vs monism. This work helps in better understanding the underlying beliefs towards moral topics such as abortion, homosexuality, nationalism etc., which can help in devising better laws, policies and help us fixing societal problems. I have successfully established collaboration with a group of computer scientists and psychologists at Nagoya university, Japan for this work. I have also worked with a Brazilian psychologist Paula Yumi to conduct morality studies. Another aspect of my work takes inspiration from the collective intelligence of humans to solve complex mathematical problems. I have developed a novel optimization algorithm based on Durkheim theory of social integration. It shows the ability of humans to work together to accomplish tasks that no individual could

accomplish alone. It was also used for solving many scientific problems like optimization of electronic nose and tongue to increase its discrimination ability, finding the set of physico-chemical properties of molecules for predicting pleasantness. I have also developed a system that combines human creativity with artificial evolution in order to produce efficient gaits for prespecified morphologies of soft-bodied robots. I have contributed significantly towards developing algorithms and analysing data for multiple industry and government sponsored projects. I have presented my work in multiple international conferences where I had the opportunity to have fruitful discussions with scientists from BRICS countries such as Dr Yuhui Shi, China. My work has been cited multiple times by scientist from the BRICS countries.

Mr Roby Soni

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Theme: Parallel Session on Energy

Title: *1D Growth of Conducting Polymers over Carbon Morphologies Towards High-Performance Supercapacitors.*

Biography

My research focuses on the field of energy, specifically on the development of charge storage and conversion devices like supercapacitors and fuel cells. Due to intermittent nature of renewable energy sources like solar, wind, etc. energy storage devices like supercapacitors have become highly essential for their development. During my four years of research, I have developed highly efficient and high energy density flexible and solid supercapacitors based on metal oxides and conducting polymers. These materials have high

theoretical charge storage capacity; however, realizable capacitance remains low due low electrochemically active surface and high resistance. My research is focussed on mitigating these limitations through structural alignment of conducting polymers and metal oxides on carbon morphologies. Following this strategy in my work on Polyaniline, I have achieved near theoretical capacitance values at a high current density. The PANI-based solid-supercapacitor could achieve energy density similar to a lead-acid battery and Panasonic LCR12339 battery. In addition, I have realized high-performance in polyethylene dioxythiophene and manganese oxide-based solid devices by synthesizing ultrathin layer of PEDOT and manganese oxide. I have also contributed to the development of Noble-metal free electrocatalyst for the oxygen reduction reaction, which is the primary electrode reaction at the cathode. In fuel cells for oxygen reduction, Platinum is the state-of-art catalyst, but its high cost and low availability have imposed a grave restriction on its widespread applications. This has compelled scientific community to search for noble-metal free catalysts. Currently, I am developing a highly efficient Pt-free catalyst for oxygen reduction reaction from the leather cutting waste of footwear industry. The leather is a rich source of the nitrogen atom, and Fe-N coordination is active of oxygen reduction. In this project, I have prepared a Fe-N-C electrocatalyst without using any additional nitrogen source. This catalyst has shown activities comparable to Pt in single cell study. Thus, this project addresses the dual problem of pollution from footwear industry and cost-effective Pt-free catalyst for fuel cells. Mr Soni has peer reviewed more than 10 publications.

Dr Satya Sekhar bhogilla

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Theme: Parallel Session on Energy

Title:

Biography

During my graduation, I pursued a national level entrance test (GATE) and attained a competent all India rank to get a branch of my choice, in IIT Guwahati. During my M. Tech, I was instrumental in developing a laboratory scale model to store energy. With zeal to further investigate the work, I enrolled for a Ph. D program in the same institute and had made several notable developments and contributions to the energy storage system. I joined HySA Systems, South African Institute for Advanced Materials Chemistry, University of the Western Cape, South Africa, as a Postdoctoral Research Fellow in October 2013 and continued my research on energy systems. I worked on development and implementation of novel energy technologies at HySA Systems under the guidance of Prof. Mykhaylo Lototskyy. The collaboration work, which resulted in six high quality international publications. I have joined in Research Institute for Energy Conservation, AIST, and Japan as a Post-Doctoral Fellow in August 2014. As a post-doc, I have made several notable developments and contributions to the renewable energy storage system. This system consists of the Unitized Reversible Fuel Cell, and hydrogen storage equipment and it can bridge the gap between renewable energy supply and demand. Throughout my career, I have contributed my expertise for the scientific advancements in the field of Energy Engineering. Based on my research contribution, I have been selected as a Young Scientist to participate in 9th Indo-German Frontiers of Engineering Symposium. I have research collaboration with Prof. Mykhaylo Lototskyy (UWC, South Africa), Prof. Mitrokhin Sergey (Moscow State University, Russia) and Prof. Yan Huizhong (BRIRE, China) regarding the issues of Energy systems. I have published sixteen papers in the international reputed journals and fifteen papers in various international conferences in the field of energy.

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Dr Sreejith Shankar Pooppanal

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Theme: Parallel Session on Energy

Title: *Smart Management in Indoor Energy Utilisation - Electrochromism and its Perspectives*

Biography

I have been part of two different programmes related to energy – one in storage (Metal Organic Frameworks for gas storage applications) and another in efficient management and utilization (Switchable smart electrochromic windows). The dependence on fossil fuels may be mitigated to a larger extent by the efficient utilization of gaseous fuels, but the storage and transportation are real challenges in this technology. Hence, gas storage materials are of tremendous academic and industrial interest and is one of the priority areas in energy research. We have developed a few tailored metal-organic materials capable of storing methane and hydrogen and could be utilized as an energy source, especially for automobiles. I have also published (J. Am. Chem. Soc. 2015) and patented (US 20160271582, 2016; WO 2015008280, 2015; a patent family: US 14/904,708; IL 243605; CN 201480040099.6; EP 14825682.9) this technology. A start-up company 'ADRO technologies' has been set up in Israel based on our work on Metal-Organic Frameworks and is currently aiming to develop gas storage systems with commercial potential. Smart, switchable electrochromic windows lead to efficient energy management and utilization, especially in indoor lighting and cooling, thereby reducing a magnanimous portion of domestic and industrial energy

consumption. Responsible consumption and management is indeed an alternative to extended energy production. I have published a few articles (J. Am. Chem. Soc. 2015, 2017, Angew. Chem. 2015) in electrochromic surface confined systems and one patent to my credit (WO 2015075714, 2015). The project was selected for a NOFAR Grant (Israel Ministry of Industry, Trade and Labor) and attempts for commercialization of this technology are currently ongoing (Merck, Germany; Hanita Coatings, Israel). In my current institute (CSIR-NIIST), the Photosciences and Photonics Section has successfully completed a research project with funding from DST-RFBR bilateral cooperation, where scientists from Russian Academy of Sciences were the collaborators. Dr Pooppanal has peer reviewed 20 publications.

Dr Subhankar Mishra

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Theme: Parallel Session on Social Science ICT

Title: *Socialisation, Security and Future*

Biography

Energy and ICT especially critical infrastructures such as smart grid have been the main focus area of my research. My research partnerships have been the USA where I did my PhD and South Korea who funded one of my research projects on Intrusion Detection Systems for smart grid systems where we developed the best placement strategy of introducing the IDS systems for the SCADA in the real smart grid test bed and was tested successfully. At ORNL, USA I also worked at Department of Energy's building efficiency lab where I worked on the building efficiency models and also the official tools for energy

systems for high energy consumption devices to make them run efficiently. Along with that, I was also involved in VOLTTRON https://www.energy.gov/eere/buildings/volttron which is the open source tool for energy efficiency among others. Specially I worked on making VOLTRRON scalable to entire city grid efficiently rather than the previous few building operations. Although, I haven't worked with any of the partner countries of BRICS; however, given energy and ICT being the important areas of focus this young scientist conclave, it provides an opportunity for me to start and continue collaboration with the young scientists of the BRICS conclave.

Dr Sudip Kumar Saha

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Theme: Parallel Session on Energy

Title:

Biography

The demand of the energy is increasing day by day. Nowadays we are utilizing the fossil fuel to extract energy for fulfilling our daily needs. Approximately 85% of the world's total energy consumption is supplied by burning of fossil fuel. Before utilizing all the natural resources of fossil fuels, we have to find a proper alternative to resolve this energy crisis. Based on that, we have tried to modify the existing technology, which is adequate for renewable energy resource in near future. We have grown various nanomaterials suitable for the energy application in a modified way. Several of organic and inorganic semiconductors are used for energy extraction from solar light. Apart from that, we have

used various techniques to fabricate solar cells such as hybrid organic/inorganic pn-junction, bulk heterojunction (BHJ), dye sensitized solar cell (DSSC) etc. We have grown Cu2ZnSnS4 semiconducting nanomaterial and used them for PV application with various organic and inorganic materials. We have shown the enhanced device performance of photovoltaic cell, with the incorporation of metal nanoparticles at a specified position of the cell fabricated using the inorganic semiconductors. Doping in semiconductors modifies the band alignment, which is favourable for higher extraction efficiency. Bismuth (Bi) doping in PbS nanocrystals fabricated with P3HT favours higher output efficiency. Incorporation of metal nanoparticles in semiconductor forms a Schottky junction (Bi2S3@Au nano-Schottky junction), enhances device performance when compared with normal semiconductor in BHJ system. Apart from that, we have fabricated solid-state dye sensitized solar cell sensitized with photoactive nanomaterials. We have the experience of working with the Perovskite material for LEDs and PVs application. Collaboration with BRICSs expertise will provide us the opportunity to develop our existing techniques for efficient renewable energy. We did not have any collaborating opportunity with BRICS at present, if we get the opportunity we will try our best for to enhance our research output. Dr Saha has peer reviewed 14 publications.

Dr Vikas Verma

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Theme: Parallel Session on Energy

Title:

Biography

The 3rd Young BRICS Scientist Forum

China

Prof Zheng Bo

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Theme: Parallel Session on Energy

Title:

Biography:

Prof Bo is currently the vice dean of College of Energy Engineering, deputy director of the Commission on Education and Science of Zhejiang Electric Power Society, and the Editorial Board Member of 2 SCI-indexed journals, i.e., Scientific Reports and Nano-Micro Letters. He served as the reviewer for more than 50 international journals, including Nature Communications, and the reviewer for NSF/DOE projects (USA) and NSFC projects (China). Prof Bo's current research focuses on nanoscale heat and mass transport and related nanomaterial based energy and environmental applications, such as supercapacitors, sensors, and solar-thermal based desalination and water purification. His research has led to 1 book (Springer Publisher) and 57 journal SCI-indexed papers, published on Chemical Society Reviews, Energy & Environmental Science, Advanced Materials, International Journal of Heat & Mass Transfer, Nano Energy, Journal of Physical Chemistry Letters, etc. His papers have been cited for over 1,800 times (ISI Web of Knowledge), including 4 ESI highly cited papers. He has peer reviewed 57 publications and has participated in the previous three BRICS Young Scientists Forums.

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Ms Weiwei Luo

Institution: Yunnan Academy of Scientific and Technical Information

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Theme: Seminar on Science Diplomacy, Advice and Communication

Title: Exploration on Policies for Transferring Technologies in BRICS Countries.

Biography:

Weiwei Luo is a research assistant in Yunnan Academy of Scientific and Technical Information (YASTI). She gained a Bachelor's Degree in Finance from Eastern Washington University in United States in 2011 and a Master's Degree in Finance and Investment from University of Nottingham, United Kingdom in 2013. In addition, she is undertaking her Ph.D. at Chiang Mai Rajabhat University, Kingdom of Thailand currently. She is mainly engaged in the area of international science and technology cooperation with an emphasis on regional technology transfer, and scientific policies research. Taking good geographical advantage of Yunnan Province, which is close to South and Southeast Asian Countries, she has been involved in promoting communication and cooperation between academia and industry among China, South and Southeast Asian Countries and other developed countries such as United States, United Kingdom, New Zealand etc. She is involved in construction of such national-level centres as China-South Asia Technology Transfer Centre (CSTTC), China-ASEAN Innovation Centre (CAIC), China-South Pacific Island Countries Technology Transfer Centre (CSPTTC), International Science and Technology Cooperation Base and so on. She has been the project leader of several International Programs supported by Ministry of Science and Technology of China and APEC Fund, such as East Asia Summit--New Energy Forum in 2017, International Workshop on Development and Application of Solar Technologies and Products in 2017, and 1st China-ASEAN New Energy Forum in 2018. She attended the 'Intensive Cohort Training in International Best

Practice in Technology Transfer and Commercialisation', which enables her more professional knowledge on technology transfer. She has certain experience in promoting cooperation and communication with scientists and entrepreneurs. She has attended both the 1st and 2nd BRICS Young Scientists Forum.

Prof Chuanyong Jing

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Theme: Parallel Session on Water

Title: *Water Remediation with Nanotechnology*

Biography:

Dr Jing is a professor of environmental chemistry at RCEES, CAS. His research primarily focus on the areas of environmental molecular and interface science. Key areas of his investigation include biogeochemical cycles of environmentally significant trace elements including arsenic, and environmental remediation using nanotechnology. With the help of synchrotron-based spectroscopic techniques and molecular modelling, his group improved the quantitative molecular-level understanding of the chemical and biological processes occurring at geo-environmental interfaces and how they affect pollutant speciation, toxicity, mobility, and potential bioavailability. Based on these fundamental understandings, his group developed nanomaterial-based techniques for on-site speciation analysis of arsenic, and arsenic remediation in groundwater and industrial wastewater. His work has resulted in over 100 publications in leading international journals such as Environ. Sci. Technology. Dr Jing is the recipient of Hundred Talent fund from CAS, Outstanding Young Scientist fund from the National Science Foundation of China. He is also the chief scientist of the National Basic Research Program of China (973 project).

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Prof Haisheng Chen

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Theme: Parallel Session on Energy

Title: *Advanced Compressed Air Energy Storage System*

Biography:

Prof CHEN, BEng, PhD, is currently the deputy Director of Institute of Engineering Thermophysics (IET), Chinese Academy of Sciences (CAS). He joined IET-CAS in 2009 as a 100-Talents professor after previous employments at University of Leeds, IET-CAS, Vrije University of Brussels and Beihang University. He is also the Fellow of Energy Institute, the President of China Energy Storage Alliance and the Director of China National Research Centre of Physical Energy Storage. He has been working on thermodynamics, fluid dynamics and heat transfer related to energy storage and power engineering. More specifically, his research includes energy storage material and system, flow & heat transfer in confined space, internal flow of turbomachinery. He has been involved with 50+ research projects with 30+ of which being the principal investigator. His research has led to 300+ papers, 9 book chapters and 140+ patents. Over 100 publications have indexed by SCI database and received 4000+ citations according to the Thomson ISI Web of Science Database. His research has been granted 10+ awards on provincial level. He also acts as committee member/session chair of 8 international conferences and editorial board member for 8 peer reviewed journals. He is currently the deputy editor-in-chief of 3 peer reviewed journals-Journal of Energy Storage Science and Technology, Journal of Thermal Science and Journal of Smart Grid. He was also the chair or co-chair of international conferences and China's national conference of energy storage.

The 3rd Young BRICS Scientist Forum

Prof Xiangliang Pan

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Theme: Parallel Session on Water

Title: *Reduce health risk of arsenic poisoning by remediation of drinking water based on bio mineralisation*

Biography:

More than 2000 people in China is exposed to drinking water and salinized soil with high levels of arsenic. Remediation of salinized soil and water contaminated with arsenic is a global tough challenge. Prof. Xiangliang Pan has developed a novel method to effectively immobilize arsenic in soil and groundwater based on biomineralization. This novel technology gains worldwide recognition and consider as a global milestone in the field of arsenic pollution control by the international scientists. He also developed a series of novel and green methods that can effectively remove heavy metals and toxic organic compounds. He successfully uses one single bacterial species to simultaneously remove various heavy metals and nitrate from groundwater. He also developed several bioremediation technologies that can effectively immobilize heavy metals and decompose persistent organic pollutants at the same time by one single bacterial species. These methods have great advantages over the traditional biological methods, by which only one type of pollutants can be removed by one species, because these novel technologies significantly decreases the cost and improves efficiency. He also has successfully innovated the most efficient method to remediate Hg contamination by far. He also significantly push the science of ecotoxicology because of his excellent work on his unique ecotoxicology theory

based on photosynthesis electron transport chain. He published more than 130 SCI papers in international journals such as Environmental Science & Technology, Water Research and Science of the Total Environment with over 2600 citations. He served as guest editor or editorial board member of 5 international SCI journals such as Geomicrobiology Journal and Journal of Arid Land. Prof Pan has peer reviewed more than 40 publications.

Prof Rong Chen

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Theme: Parallel Session on Energy

Title: *Optofluidic Microreactors for Energy and Environmental Applications*

Biography:

Prof Rong Chen has comprehensively studied the shared critical thermophysical issue in the fuel cell, photocatalysis and optofluidics systems. The mechanism and characteristics of the coupled heat and mass transport and electrochemical reactions occurring in DMFCs are revealed. Based on these findings, an asymmetric electrode architecture with the matched heat and mass transport has been proposed, which realizes simultaneous water and thermal managements. Besides, the characteristics of the two-phase flow and heat and mass transport coupled with the photo-induced transformation has also been revealed and the optofluidic microreactors with three-dimensional catalytic layer have been developed for addressing the environmental and energy issues, which brings in the possibility of promising applications like degrading pollutants and generating electricity. Prof Chen has published more than 100 peer-reviewed journal papers. All published papers have been cited by more than 2000 times. He has been awarded the National Natural Science Fund for Outstanding Young Scholar, Science and Technology Innovation Leader of National Special Support

Program for High Level Talents, Young Scholars of Chang Jiang Scholars Program and so on. In 2013, he was awarded the Second-class Prize of National Natural Science of China (The 3rd receiver). Prof Chen has also been invited to be the member of International Advisory Board of the 1st/2nd International Conference on Bioenergy, Environment and Sustainable Technologies hosted by Arunai Engineering College, which was held in India.

Prof Yao Zhang

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Theme: Parallel Session on Water

Title: *Processes and Approaches of Coastal Ecosystem Carbon Sequestration*

Biography:

Dr Zhang is a professor of biological oceanography. Her research interests include marine microbial ecology with emphasis on structure and function relationships in microbial communities and microbial oceanography deciphering the metabolic activity of Bacteria and Archaea thriving in the open ocean and relating their community composition to the biogeochemical fluxes in the water masses. She and her group achieved a series of theoretical and experimental products and significantly improve our understanding of microbially driven marine nitrogen and carbon cycling. These studies have yielded more than 40 peer-reviewed papers published in journals that are covered by the Science Citation Index (SCI) database. Dr Zhang regularly attend international academic conferences, such as Association for the Sciences of Limnology and Oceanography (ASLO), International Symposium on Microbial Ecology (ISME), American Geophysical Union (AGU), and is the co-chair of the sixth International Conference on Nitrification and Related Processes (ICoN6), which will be held in Xiamen (China) in July 2019. Dr Zhang has presided over

eight key programs, including National Key R&D Program of China "Processes and Approaches of Coastal Ecosystem Carbon Sequestration" (2016-2021), National Science Fund for Excellent Young Scientists (2015-2017), General Program of National Natural Science Foundation of China (2009-2011, 2012-2015, 2017-2020), State Oceanic Administration Program "Global Change and Sea-air Interaction" (2013-2016), Program for New Century Excellent Talents in University (2011-2013), and General Program of Natural Science Foundation of Fujian (2012-2014). Due to her outstanding achievements, Dr Zhang has won two "State Natural Science Second-class Award of China" in 2006 and 2015, "Natural Science First-class Award of Fujian" in 2014, "Yun Sheng Youth Science and Technology Award of Fujian" in 2015, "Young and Middle-aged Science and Technology Innovation Leader" in 2016, "National 'Ten Thousand Plan' Science and Technology Innovation Leader" and "Youth Science and Technology Award of Fujian" in 2017.

Ms Yanting Li

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Theme: Parallel Session on Social Science/ICT

Title:

Biography:

Education:

- 2008 to 2010 Master's degree in Signal Processing Technology, Communication University of China

- 2003 to 2007: Bachelor's degree in Communication Engineering, Communication University of China

Working

- 2010 to present: Senior Engineer in Broadband Network Research Department, China Academy of Information and Communications Technology (CAICT, name changed from CATR of MIIT, Ministry of Industry and Information Technology)

Project experience

- 2016: China-ASEAN Workshop on Information Infrastructure Interconnectivity (Ministry of Information and Communication Technology)
- 2015: 13th Five-Year Development Plan of Information and Communication Industry (Ministry of Information and Communication Technology)
- 2015: CHINA-ASEAN Workshop on Broadband Development & Universal Service (Ministry of Information and Communication Technology)
- 2015: 13th Five-Year Plan of Broadband in Shandong Province (Shandong Communications Administration)
- 2014 :Broadband Development Plan of Yunnan Province (Yunnan Communications Administration)
- 2014: Digital Qinghai Strategic Plan within Broadband Qinghai (Qinghai Communications Administration)
- 2013: China Broadband Network Infrastructure Development Plan (Ministry of Information and Communication Technology)
- 2013 : Broadband Development Status Analysis of all the Provinces and Autonomous Regions in China (Ministry of Information and Communication Technology)
- 2012: Broadband China Special Action Plan (Ministry of Information and Communication Technology)
- 2012:Broadband Development Analysis Report of Broadband China Special Action Plan (Ministry of Information and Communication Technology)

The 3rd Young BRICS Scientist Forum

Prof Hanying Li

Institution: Zhejiang University

Tel: 86-571-87952708

Email: hanying_li@zju.edu.cn

Theme: Parallel Session on Energy

Title: Long-range ordering of bulk heterojunctions for organic photovoltaics for organic photovoltaics

Biography:

Prof Li is the Qiushi Distinguished Professor in the Department of Polymer Science and Engineering at Zhejiang University, China. In December. 2009, he completed his Ph.D. degree at Cornell University in the field of materials science and engineering (advisor: Prof Lara A. Estroff). Subsequently, he did his postdoc work on organic electronics at Stanford University with Prof Zhenan Bao. He got the MRS graduate student silver award for his Ph. D. research on polymer/single-crystal composites. And after the postdoc work, he won the award of "National 1000 Young Talents Program" from the Chinese government and became a full professor in Zhejiang University. I n 2013, he won the "PAT 2013 Life-Time Achievement Award (Junior)" in 12th Polymers for Advanced Technologies (PAT) conference at Berlin. In 2016, he won "The National Science Fund for Distinguished Young Scholars" and became the Qiushi Distinguished Professor. His current research focuses on bio-inspired single-crystal growth and organic-single-crystal-based electronic and optoelectronic devices such as transistors and solar cells.

The 3rd Young BRICS Scientist Forum

Dr Kangming Tian

Institution: Dept. Biological Chemical Engineering; Tianjin University of Science & Technology

Tel: +86-15961761896

Email: jinantkm@163.com

Theme: BRICS Young Innovator Prize

Title: *Novel technology for high efficiency conversion of biomass to ethanol using hydrolases cocktail and metabolically engineered strains*

Biography

EDUCATION

- 2013 Ph.D in Fermentation Engineering, Jiangnan University, Wuxi, China Ph.D Thesis: Conversion of glycerol to lactic acid with metabolically engineered *Escherichia coli*. Supervisor: Prof. Zhengxiang Wang
- 2006 BS in Biotechnology, Yantai University, Yantai, China

EMPLOYMENT HISTORY

- Mar. 2017-Sept. 2017 Visiting scholar in Durban University of Technology, South Africa Enzyme library construction of *Thermomyces lanuginosus* SSBP
- Dec. 2015 to date Lecturer, Dept. Biological Chemical Engineering, Tianjin University of Science & Technology.
- July 2013-July 2015 Post-doctoral fellow, School of Biotechnology, Tianjin University of Science & Technology; Co-Supervisor: Prof. Fuping Lu

RESEARCH INTERESTS

- Metabolically Engineered Strains: Development & Processing for Ethanol, Succinate, 1,5- pentanediamine, L-lactate and D-lactate monomer;
- New enzymes: Finding, Cloning, Expression & Application.

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PUBLICATIONS AND INNOVATION PATENTS

- Publications: more than 33 articles were published and 14 were published in SCI journals.
- Patents: 11 innovation patents were applied including 4 PCT patents, and 4 were authorized

Mr Jiahong LIU

Institution: China Institute of Water Resources and Hydropower Research

Tel: +86-13661282400

Email: liujh@iwhr.com

Theme: Parallel Session on Water Resources

Title: *Integrated Water Resources Management in China: Practicing the Strictest Water Resources Management System*

Biography:

EDUCATION

- B.Sc. Fluid mechanics and engineering, Department of Hydraulic Engineering, Tsinghua University, Beijing, China, 09/1996－07/2000
- Ph.D. Hydrology and Water Resources, Department of Hydraulic Engineering, Tsinghua University, Beijing, China, 08/2000－07/2005

POSITIONS HELD

- 07/2005－04/2007 Research Assistant, State Key Laboratory of Hydraulic science and engineering, Tsinghua University, Beijing, China
- 05/2007－present Senior Engineer/ Professor, Department of Water Resources, China Institute of Water Resources & Hydropower Research (IWHR), Beijing, China

PROFESSIONAL ACTIVITIES AND SERVICES

- 06/2017－present Vice Chairman of Water Resources Committee, Chairman of Committee on Youth Work of Water Resources, China Natural Resources Association
- 08/2014－present Committee Member of The Chinese Association of Young Scientists And Technologists
- 08/2015－09/2015 Visiting Professor, Royal Institute of Technology (KTH), Sweden
- 04/2012－05/2012 Visiting Professor, University of Cambridge, UK
- 03/2006－09/2006 Visiting scholar, Parallel computing, National Tsinghua University (Xinzhu, Taiwan, China)

MAJOR RESEARCH WORKS & AWARDS:

- 01/2013－12/2016 PI of the National Natural Scientific Foundation financed project "The mechanism and modeling of high water consumption in urban area".
- 01/2016－12/2018 PI of the National Natural Scientific Foundation financed Outstanding youth project "Hydrology and Water Resources".
- 12/2015－ 12/2018 PI of National Special Talent Support Program (10000 Plan) "Urban hydrology and engineering"
- 01/2018－ 12/2022 PI of the National Natural Scientific Foundation financed key project "Urban Flood and its essence of hydrology and hydrodynamics: mechanism and coupled modelling".
- 08/2014 Global Human Settlements Award of Green Technology derived from the project "Photovoltaic solar water pumping for the conservation of grassland and farmland in China"
- 12/2014 The National Second Prize for scientific and technological advancement derived from the project "Evolutionary Mechanism of Basin-level Water Cycle and Highly Efficient Utilization of Water Resources" (certificate number: 2014－J－222－1－01－R10).
- 05/2016 China Youth Science and Technology Award for the brilliant contribution on Water Cycle Simulation and Regulation

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Ms Yongnan Zhu

Institution: China Institute of Water Resources and Hydropower Research

Tel: +86-18910855482

Email: zhyn@iwhr.com

Theme: Parallel Session on Water Resources or Energy

Title: *Climate and China's Water-Energy nexus*

Biography:

Yongnan Zhu is a senior engineer of China Institute of Water Resources and Hydropower Research (IWHR). She gained a Master's Degree in Geoscience and Environment from University of Science and Technology of Lille, France in 2009. And she finished her Ph.D. at Hohai University, China in 2015. She is mainly engaged in the research of water resources environment and climate change, and the interdisciplinary fields of energy and water. She have been involved in several national level research program, such as the 12th Five-Year national science and technology support program "Climate change for water resources impact and risk assessment technology"; the world bank project "Thirsty energy-China case study"; the major consulting project of Chinese Academy of Engineering "Study on water security strategy and related major policies in China"; the international science and technology cooperation Program of China "Water-energy nexus and key technologies for efficient green utilization". She has published 3 monographs and over 20 papers.

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Ms Changshuo Huang

Institution: Nanjing Hydraulic Research Institute

Tel: +86 19951782870

Email: cshuang@nhri.cn

Theme: Parallel Session on Water

Title : Characteristics of Water Resources and its Management Practices in China

Biography:

Ms Changshuo Huang played an important role in many national, provincial and ministerial scientific research projects, including National Science and Technology Support Project、Public Welfare Project of Ministry of Water Resources、National Key R&D Program、Water Resources Conservation and Protection Projects of Ministry of Water Resources, etc. She participated in writing 7 books, published more than 20 academic papers, and won the second prize of Da Yu Water Conservancy Science and Technology Award twice.

Dr Xiaopei Lin

Institution: Ocean University of China

Tel: +86-13780624166

Email: linxiaop@ouc.edu.cn

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Theme: Parallel Session on Water

Title and Abstract: *Water Cycle Under Global Warming*

Biography:

Dr. Xiaopei Lin is working on the Ocean dynamics and its climate impact. In the past decade, he made some progresses on the ocean circulation variability and interaction with oceanic waves and eddies. He has published more than 100 peer review papers in the Journals. He is very active in international collaboration. He was nominated as the Co-chair in the Pacific Panel of climate variability and predictability project (CLIVAR). He was also the Co-chair in the Project of 'AIR-SEA INTERACTION IN THE KUROSHIO EXTENSION AND ITS CLIMATE IMPACT' (AIKEC), under Intergovernmental Oceanographic Commission Sub-Commission for the Western Pacific (IOC-WESTPEC) of United Nations Educational, Scientific and Cultural Organization (UNESCO). Now he is working with scientists from other BRICS countries, such as Russia and Indian, to study the ocean variability and its contribution to climate change, especially under global warming. Dr. Lin has peer reviewed 68 publications.

Mr Ding Maosheng

Institution: Ningxia Electronic Power Company

Tel:

Email: dingmaosheng1977@126.com

Theme: N/A

Title

Biography:

Education Background:

- July 1997, bachelor degree from school of electric power and automation chemistry, TianJin University.
- September 2002, master degree from school of electric power,the South China University of Technology
- November 2005, doctoral degree from the school of electric power, south China University of Technology.

Work experience

- 1999.9 - 2000.9:R&D engineer of Shenzhen Emerson network Energy Company.
- 2005.11 – 2009/10:staff of power dispatching centre in State Grid Ningxia Electric Power Company .
- 2009.11- 2010.10: deputy chief engineer of State Grid Ningxia Electric Power Company.
- 2010/11/2012.: chief engineer of State Grid Ningxia Electric Power Company.
- 2012.5-2015.5:deputy director of the power dispatching center in State Grid Ningxia Electric Power Company .
- 2015.5- :director of technology and information department in State Grid Ningxia Electric Power Company

Complete and ongoing research projects

- Short-term power forecast of wind power., (National natural science foundation of China)
- A comprehensive demonstration of smart power grid characterized by multi-link integrated interaction , (National natural science foundation of China)

Major research areas

- Prediction, control and scheduling of distributed energy.
- The basic source and load coordinated control and promotion of distributed energy consumptive
- Mechanism and method in power systems.
- Relay protection in large power grid

Academic papers

- Zhong, HW; Xia, Q; Kang,CQ; Ding, MS; Yao, JG; Yang, SC. An Efficient Decomposition Method for the Integrated Dispatch of Generation and Load. IEEE TRANSACTIONS ON POWER SYSTEMS, 2015, 30(6): 2923-2933.

Ms Ying Huang

Institution: China Academy of Information and Communications Technology

Tel: +86-13683512500

Email: huangying@caict.ac.cn

Theme:

Title:

Biography:

Education:

BEIJING University of Posts and Telecommunications: M.S. Information Engineering September 2002 – April 2005.

Research Focus: Telecommunication Networking. Beijing University of Posts and Telecommunications – Beijing, China

B.S. Information Engineering September 1998 – June 2002

Work experience

China Academy of Information and Communications Technology

April 2005 – Present Position: Senior Engineer

Awards and group memberships

- First Prize of China Communications Society Science and Technology 2012
- Research on Key Technologies and Applications of Broadband Network and Interoperability in Emergency Communication Site

- Third Prize of China Communications Standardization Association (CCSA) 2010
- The series of standards on emergency communications
- First Prize of China Communications Standardization Association (CCSA) 2009
- The series of standards on Telecommunications network and Internet security

Publications:

- Emergency Communication Technology and System Application January 2010. Published by Machinery Industry Press Chinese version of the library CIP data word (2009) No. 231668
- Ubiquitous network of domestic and international standardization of the overall situation March 2010. Published on Telecommunication Network Technology ISSN 1008-9217
- Information Service Industry Development Trend Analysis January 2010. Published on Telecommunication Network Technology ISSN 1008-9217

Dr. Chong Shen

Institution: College of Information Science and Technology, Hainan University

Tel: +86-13907691716

Email: chongshen@haiu.edu.cn

Theme: Parallel session on Water or Energy

Title: *A novel framework and approach maritime information*

Biography:

The 3rd Young BRICS Scientist Forum

Dr. Jin Zhang

Institution: Research Center of China-Africa water civilization, Institute of African Studies, Zhejiang Normal University

Tel: 86-13867974261

Email: zhangjin@zjnu.cn

Theme: Parallel Session on Water

Title : *Sino-Africa water technology Innovation : communication and dialogue*

Biography:

Dr.Jin ZHANG(Angie), PH.D in Economic History, Associate Professor at IAS, ZJNU; Executive Director of China-Africa Water Civilization Research Centre, Executive Editor of Annual Report on the Development of Africa which is Report based on Ministry of Education Philosophy and Social Science Development in China, Council member of Chinese Society of African Historical Studies, Researcher at the Chahar Research Society. She has been engaging in research on African issues for 15yeas and visited a dozen of African countries for conferences or field research. She chaired the Project of the National Social Science Fund in 2014 (Historical Investigation of International River Water Resources Utilization in Southern Africa), Ministry of Education Humanities and Social Sciences Youth Fund Project 2012 (Exploration of African Regional Economic Integration: 30 Years of SADC) etc.. She has published 3 books and more than 40 papers. Now she is the anonymous reviewer for South Africa University Ph.D dissertation and Hydrogeology Journal, etc. Now she is focusing on African environment economic history, especially on water studies. Based on her experience as one of the key coordinators of the China-Africa Think Tank Forums, she has established extensive links with scholars from South Africa, Zimbabwe, Botswana as well as USA.

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Mr Yifan Wu

Institution: Shanghai Xforceplus Information and Technology Company

Tel: +86 188 1795 7648

Email: wuyifan@xforceplus.com

Theme: BRICS Young Innovator Prize

Title: *Xforce+ VAT Invoice Management & Supply Chain Collaboration Platform*

With the implementation of the "B2V" reform and the "Golden Tax Phase Ⅲ" project in 2016, all the enterprises in china were faced with an enormous challenge in terms of finance and taxation, especially those in the "B2V" reform. On this occasion, I joined "Xforceplus" as a partner and product consultant. Based on a large number of market research and demand collected from the Fortune 500 enterprises, I have created a new product pattern of "supply chain collaboration" in the original VAT invoice management solution, helping enterprises to settle accounts with their suppliers more quickly, do the authentication and deduction more efficiently, reduce the cost of cash flow occupation and avoid tax risk in ahead. In addition, I designed a full self-service mode of electronic invoices to help enterprises reduce the cost of invoice issuance and improve the user experience of consumers.

Innovative Product/Project

- Supply chain collaboration:

Help our users automatically settle accounts with suppliers and obtain invoices issued by suppliers accordance with users' requirements in time.

- VAT invoice management: Help our users identify the information on paper invoices by OCR technology, verify invoices automatically, do the authentication and deduction of invoices centrally, and receive the early warning of the tax risk.

- Electronic invoice issuance: Provide our users a self-service e-invoice solution to enable consumers to obtain the e-invoice automatically.

Mr Feng Xu

Institution: Shanghai Xforceplus Information and Technology Company

Tel: +86-18916800721

Email: xufeng@xforceplus.com

Theme:

Title and Abstract:

Biography:

Education background

- 2011.09 – 2014.12 Master of Business Administration: College of Business - Shanghai University of Finance & Economics
- 1998.09 – 2002.06 Certified Public Accountant (Aimed): Shanghai LiXin University of Accounting and Finance

Qualification

- Certified Public Accountant (CPA China 2003). The Chinese Institute of Certified Public Accountants
- Certified Management Accountant (CMA USA 2010): The Institute of Management Accountants
- Senior level Accountant (Evaluation Phase): Shanghai Municipal Finance Bureau

Professionalism

Mr Feng Xu has been engaged in financial management for more than fifteen years in a number of global fortune five hundred enterprises. It is good to use data model to analyze

and predict the profit of various economic activities, to make financial budgets for enterprises and to control the implementation, and to optimize the efficiency of the use of the company's resources.

Award

- Representing the company won the Second Prize of 2017 National Innovation and Entrepreneurship Competition
- 2017 Shanghai future star project member
- 2013 the Dean's Special contribution award of College of Business - Shanghai University of Finance & Economics

Prof Zhe Gao

Institution: Tsinghua University

Tel: +86-10-62797535

Email: gaozhe@tsinghua.edu.cn

Theme: Parallel Session on Energy

Title: *Global Collaborative Fusion Energy Research: from Physics to Engineering.*

Biography:

Research Interests:

- Plasma physics with application to magnetic confinement fusion, especially plasma-wave interaction, micro-instabilities, turbulence transport and coherent structure, and spherical tokamak physics.

University Education:

- Ph. D. in nuclear science and engineering, Tsinghua University, 2002
- B. S. in engineering physics, Tsinghua University, 1997

Work Experience (including visiting research experience):

- 2004.12-2011.12, Assoc. Prof. at Department of engineering physics, Tsinghua University
- 2002.07-2004.12, Assist. Prof. at Department of engineering physics, Tsinghua University
- 2009.01-2013.12, Visiting Prof. and Deputy director of Center of MCF Theory at ASIPP
- 2010.04-2010.07, Erasmus Mundus Visiting Scientist at Nancy University and ERM/KMS
- 2006.04-2006.07, Visiting Scientist at Princeton Plasma Physics Laboratory (PPPL), US
- 2004.04-2004.07 ,/2007.07-2007.10 Visiting Assoc. Prof. at National Institute for Fusion Science, Japan (twice)

Academic Honours and Awards:

- National High Level Talents Special Support Plan (Ten Thousand Talents Plan) 2016
- Winner of National Science Fund for Outstanding Young Scholars 2013
- Excellent Youth Award, Fok Ying-Tong Education Fundation and MoE, 2012
- New Century Excellent Talents in University, MoE, 2008
- Beijing Nova Program, 2008
- National Excellent Doctoral Dissertation Award, 2004
- Selected Professional Responsibilities:
- Editorial Board, Plasmas Science and Technology
- Editorial Board, Matter and Radiation at Extreme
- Topical Group Member, International Tokamak Physics Activities
- Member of Science and Technology Committee for EAST tokamak
- Executive member of the Council, Division of Fusion and Plasma Physics, Chinese Nuclear Society
- Member of the Council, Division of Plasma Physics, Chinese Physics Society
- Member of IPC, International Workshop on Spherical Torus

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Publication:

91 peer-reviewed journal articles and over 50 invited/oral conference talks.

Prof Fubao Zhou

Institution: School of Safety Engineering, China University of Mining and Technology

Tel: +8613225221829

Email: f.zhou@cumt.edu.cn

Theme: Parallel Session on Energy

Title : Control and Utilisation of Subsurface Fires: Turn Hazards to Resources

Biography:

Coal fires are considered to be a worldwide energy, environmental and economic hazards; some of the largest ones occurred in China, USA, India, South Africa, and Australia. Given the enormous amount of waste heat produced, coal fires exhibit tremendous potential as recoverable energy sources, and can prove beneficial. Prof Fubao Zhou and his research team develop a comprehensive system of underground coal fire control, surface ecological restoration and eco-tourism park construction. A game-changing approach, environmentally sound thermal energy extraction from the intractable natural coalfield fires is being developed by utilizing the waste energy and reducing the temperature of coalfield fires at the same time. The power generation from a single borehole at Daquan Lake fire district in Xinjiang has been exceeded 2104 W. What's more, according to the CO2 recovery and utilization, and ecological restoration from coal fire zones, a unique Chinese business card of coal fires management is formed. Based on 111 project (Overseas Expertise Introduction Center for Discipline Innovation)—Prevention and Utilization of Underground Coal Fires, we will spread the new concept from "control" to "use", and lead

the development and revolution of coal fires prevention. Prof Fubao Zhou is the recipient of the following awards: 3 National Prizes for Progress in Science and Technology and 1 National Award for Technological Invention. More than 80 research findings have been published in international journals by Zhou such as Fuel, Energy & Fuels, International Journal of Coal Geology, International Journal of Rock Mechanics and Mining Sciences, and Fire Safety Journal and so on. He is also a member of editorial board of International Journal of coal science & mining engineering and International Journal of Mining Science & Technology.

Prof Haiyun Gan

Institution: Tianjin University of Technology and Education

Tel: 86-23-13527447295

Email: ganhaiyun@aliyun.com

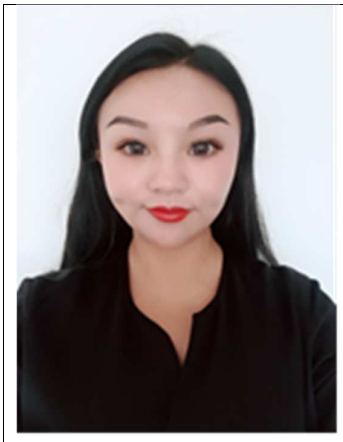
Theme: Parallel Session on Energy

Title: *The Electronic Vehicle Development and Application Status in China*

Biography:

Prof .Gan Haiyun achieved his Ph.D. degree from Beijing Institute of Technology, and finished his postdoctoral research in Tsinghua University. He was the visiting scholar of the Japan Automobile Research Institute. He has ever worked for China Automotive Engineering Research Institute as the deputy director of Electric Vehicle Engineering Research Centre, director of the Chongqing Intelligent Connected Vehicle Engineering Research Centre. He is now the professor and deputy director of the Tianjin Intelligent Transportation Engineering Research Centre. His main research interests include new

energy and intelligent vehicle's electronic control technology, intelligent vehicle's test and evaluation technology, etc. He has finished more than ten national and provincial scientific and technology research projects. He has ever achieved the first level prize of the China automotive industry science and technology awards, and 3 other provincial and ministerial level scientific and technology awards.



Wang Shu

Institution: Qingdao wisdom Valley Intelligent Technology Co., Ltd.

Tel: +8618653295946

Email: 3161667359@qq.com

Theme: Young Innovator

Title: *Guardians of the valley of the clouds, guardians of family security*

Biography:

Wang Shu has made remarkable achievements in such fields as smart home and smart city. Subversion the traditional concept of smart home, create a smart home control system, set health, safety, wisdom in one, will learn, think, smart, intelligent, artificial intelligence, fuzzy calculation, can comply with the master requirements of the initiative service. At present, the intelligent Valley has formed a complete smart home platform, product, service industry chain and a complete cloud computing big data service center. We have launched a powerful intelligent home control center, intelligent switch, intelligent socket, intelligent sensor, artificial intelligence new wind machine and other core products and a series of peripheral products to form a perfect ecological service chain. At present, smart home products have been widely used in smart home, smart hotel, wisdom school, intelligent

pension, hospital, office, building automation, commercial square, decoration, catering and other fields, in the field of smart home in the leading position.

Mr Li Nong

Institution: Chengdu Detong Yinke Venture Capital Fund

Tel: 13908177907

Email: lining@dtykfund.com

Theme:

Title:

Biography:

Li Nong, acts as various roles, such as founding partner and general manager of Chengdu Detong Yinke Venture Capital Fund, managing partner of DT Capital, leading investor of China in 2016, new leader of China's economy in 2017 economic summit forum, judge and mentor of China Innovation&Entrepreneurship Competition for six consecutive finals , director of Chengdu Angel Investment Association, vice president of Chengdu VC&PE Association, vice president of Chengdu investment and financing chamber of commerce, vice president of Sichuan Alumni Association from Peking University Guanghua School of Management, member of CPPCC of Sichuan Tianfu New Area and etc. In 2002, he worked as CEO and founded TianMeng Network Technology Co., Ltd. which won the national 863 plan, the torch project and national natural science fund support. It won the reward of top 50 China's fastest growing small and medium-sized enterprises in 2003, lately it was invested by the international well-known Venture capital institution and acquired merger and acquisition exit in Hong Kong. Then he was chief representative of southwest China appointed by DT Capital in 2007. Lately, he created Chengdu DT Yinke Venture Capital Fund whish was the first government Guiding fund having shares in Chengdu. This fund

invested more than 30 enterprises, mainly including HeBang Shares (603077), HouPu Shares (300471),Heke da(002816)、Tian Sheng Pharmaceutical(002872), Haichuan Industrial, Heng Yang Farming, Jiangsu YongNian Laser and etc.. Hou Pu shares was rated as "Top 50 fastest growing SMEs in China". The Fund had annual rate of returns of more than 30% six years in a row and realized more than 600 million profit in 2016. It was named as “Best VC Institutions in Chengdu” in six years while DT Capital was rewarded as "China venture investment institutions top 10 " and "China best venture investment exit institution" both in 2016. The main investment areas include TMT, Clean Energy/Energy Saving & Environmental Protection, Bio-medicine/ Health Industry, Consumption/Brand Chain, High-end Manufacturing/Military Industry, etc.

Yongnan Zhu

Institution: China Institute of Water Resources and Hydropower Research

Tel: 86-10-68785501

Email: zhyn@iwhr.com

Theme: Parallel Session on Water

Title : *Climate and China’s Water-Energy nexus*

Biography:

Yongnan Zhu is a senior engineer of China Institute of Water Resources and Hydropower Research (IWHR). She gained a Master’s Degree in Geoscience and Environment from University of Science and Technology of Lille, France in 2009. And she finished her Ph.D. at Hohai University, China in 2015. She is mainly engaged in the research of water resources environment and climate change, and the interdisciplinary fields of energy and

water. She have been involved in several national level research program, such as the 12th Five-Year national science and technology support program "Climate change for water resources impact and risk assessment technology"; the world bank project “Thirsty energy- China case study”; the major consulting project of Chinese Academy of Engineering “Study on water security strategy and related major policies in China”; the international science and technology cooperation Program of China “Water-energy nexus and key technologies for efficient green utilization”. She has published 3 monographs and over 20 papers.

Dr Dong Liu

Institution: South Africa Liaison Office of ZhongGuanCun

Tel: +27 116666208

Email: ericliud@hotmail.com

Theme: Workshop on Youth Innovation and Entrepreneurship

Title:

Biography:

Dr Liu holds a PhD degree in Management Science and Engineering, M. Sc. in Business Administration, B. Sc. in International Economic and Trade, from Management School, University of Science and Technology Beijing, P.R.China. On completion of his PhD, he worked on a research of Study on Post-evaluation of China Overseas Mineral Resource Investment Project-examples from Africa when he was sent to work in South Africa by Sinosteel Corporation. He is currently the Managing Director of Tubatse Chrome Minerals and Tubatse Alloy which is a JV of Sinosteel. He was involved in the international trading and overseas projects investment sections in Sinosteel before he joined Tubatse. In 2018 he was nominated as the Managing Director of South Africa

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Liaison Office of ZhongGuanCun which focuses on building a globally center for science and technology innovation.

Dr Lizhi Huang

Institution: School of Asian and African Studies, Beijing Foreign Studies University, China

Tel: +27 715 585938

Email: Elainehlz@126.com

Theme:

Title:

Biography:

Miss Lizhi Huang holds a Doctor Degree of International Relations from the Joint PhD Program of Peking University of China and Cornell University of U.S., and she is now working as an assistant Professor at Beijing Foreign Studies University. She is currently based in South Africa for IsiZulu language and African studies at the university of the Witwatersrand. In 2017, She has published her monograph An Unveiling Name Card: Chinese Youth Volunteers Overseas, and translated a book of famous scholar Francis Fukuyama Our Post Human Future. Over the years, she has published over 20 academic articles about Chinese Youth Volunteers, Foreign Aid and Feminism. Her footprints in the developing countries such as South Africa, Nepal, Myanmar, Kenya has helped in producing several articles, generating resonance with her counter-partners there, and connecting different countries together. What's more, she has shared her academic views at different international seminars and conferences, such as Oxford China-Africa Network, UNV international conference on Volunteers and SDGs, etc.

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South Africa

Senior Department of Science and Technology officials, speakers and facilitators

	Mr Daan du Toit, Deputy Director-General of International Cooperation and Resources
	Institution: Department of Science and Technology **Tel:** +27 12 843 6323 **Email:** Daan.duToit@dst.gov.za
Theme: Seminar on Science Diplomacy, Advice and Communication	

	Dr Neville Arendse: Chief Director, Overseas Bilateral Cooperation
	Institution: Department of Science and Technology **Tel:** +2712 843 6315 **Email:** Neville.Arendse@dst.gov.za
Theme: Chair and Opening Remarks	

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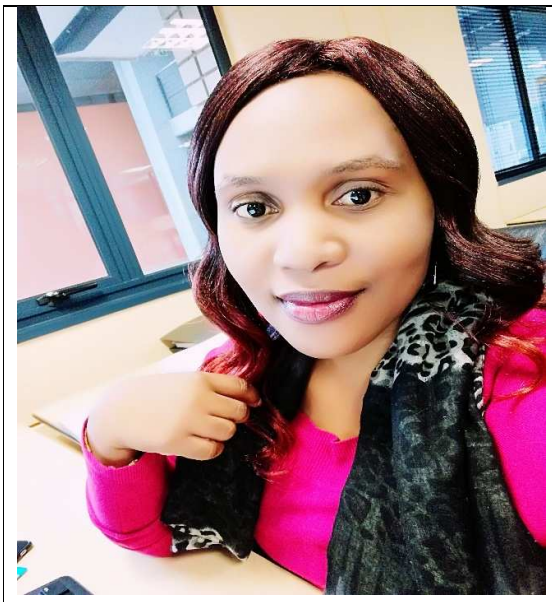


Ms Bongi Mkhize: Deputy Director; Overseas Bilateral Cooperation (Americas and Asia)

Institution: Department of Science and Technology

Tel: +2712 8436371

Email: Bongi.Mkhize@dst.gov.za

Theme: Opening Plenary: Outline of the 3rd BRICS Young Scientist Programme

Bibliography

Bongi Mkhize has been working for the South Africa Department of Science and Technology for 10 years, first with Africa Bilateral and Multilateral Cooperation, then later with Overseas Bilateral Cooperation. She holds a BSc degree in Microbiology and Chemistry (Hons) from the University of South Africa as well as MBA degree from the Open University (UK) with a dissertation titled "Organisational Structure, Systems and Culture as Key Drivers to the Implementation of Strategies". She has recently completed her PhD thesis in the Management of Technology and Innovation with the Da Vinci Institute of Technology and her thesis title is "Model for harmonising National Policy to capitalise on South Africa's scientific and technological prowess: Lessons learned from developing economies". Bongi is partly responsible for developing and servicing strategically selected international relationships/ partnerships and agreements in Science, Technology and Innovation (STI) between South Africa and countries outside Africa particularly in the Americas (including Caribbean) and Australia Asia regions, to strengthen the South African National System of Innovation (SANSI) and contribute towards social and economic development. She has been instrumental in the establishment and nurturing of new relations

between South Africa and specific partner countries and in creating an enabling environment for the SANSI to access international science and expertise.

Mr Joseph Senona

Institution: Department of Science and technology

Email: Joseph.Senoma@dst.gov.za

Theme: Seminar on Science Diplomacy, Advice and Communication

Biography

Mr Senona is currently the Director responsible for Africa Cooperation in the Department of Science and Technology (South Africa) working as a Science diplomat in pursuit of STI collaboration between RSA, Africa and the globe. He has previously worked as a trade diplomat at the Department of Trade and Industry focusing on Africa economic integration. Before that, he worked at the Department of Foreign Affairs as a home based diplomat promoting peace, security and economic development in the Horn of Africa. Before joining Foreign affairs, he was based in Geneva where he worked for the South Centre and the ACP secretariat in Geneva as a trade and development research expert promoting South-South Cooperation.

He holds a Masters in International Economic Law and currently a PhD candidate in Technology Innovation management focusing on High Technology Exports. He has published peer reviewed as well as articles on international political economy. Mr Senona is passionate about the right to development, particularly Africa Development. He has enthusiastic interest in investment, trade, industrial, technology and innovation.

The 3rd Young BRICS Scientist Forum

Prof Alta Schutte

Institution: North-West University

Tel: 082 5478 741

Email: alta.schutte@nwu.ac.za

Theme: BRICS Young Women in Science

Title: *The Strategic Role of Women in Globalised Science*

Biography

Alta Schutte is Professor of Physiology, and funded by the Department of Science and Technology as the South African Research Chair (SARChI) in the Early Detection and Prevention of Cardiovascular Disease in South Africa – hosted by the Hypertension in Africa Research Team (HART) at the North-West University. She is also the Unit Director of Medical Research Council Extramural Unit for Hypertension and Cardiovascular Disease. The research focus of HART is the identification of early markers for the development of hypertension, and ultimately the prevention of cardiovascular disease in the black South African population. She has published over 200 papers on the topic of hypertension, and supervised over 70 postgraduate students. She has been acknowledged for her work as the winner of the Distinguished Woman Scientist in the Natural, Engineering and Life Sciences award, presented by the South African Department of Science and Technology in 2017; the NSTF South 32 TW Kambule Award (2016/2017); the British Association Medal from the Southern Africa Association for the Advancement of Science (S2A3). She was also the recipient of the Meiring Naude Medal from the Royal Society of South Africa, and the AU-TWAS (African Union & The World Academy of Sciences) Award. She serves on the Editorial Board of established cardiovascular journals, such as the Jounal of Hypertension, European Journal of Preventive Cardiology, Journal of Human Hypertension, Current Hypertension Reports, Current Obesity Reports, and Clinical Science. She is one of 20 founding members of the South African Young Academy of

Science (SAYAS); the immediate Past President of the Southern African Hypertension Society (SAHS); and President Elect of the International Society of Hypertension (ISH).

Ms Pelly Malebe

Institution: University of Pretoria

Tel: 0824491261

Email: pelly.malebe@yahoo.com

Theme: BRICS Young Women in Science

Title: *My Road Through Science: Achievements and Challenges*

Biography

Pelly Malebe is a Biotechnology PhD candidate at the University of Pretoria (UP). She was selected as the Next Einstein Forum Ambassador for South Africa and represented the Next Einstein Forum and her country at the 2016 and 2018 global gathering. Pelly Malebe graduated with a BSc in Human Genetics and an MSc in Biotechnology, both from University of Pretoria. During her honours and master's studies, she worked as a teaching assistant. She is currently writing up her PhD thesis while working as a Product Specialist. She is a member of the Golden Key International Honour Society. Her current research focuses on identifying and developing molecular markers for drought tolerance and yield in the tea plant. The potential outputs of this research are robust molecular markers that can be used in a selection process in order to improve the yield of tea produced by the global tea industry. Her focus is on increasing the understanding of the genetic basis of drought tolerance in plants, as this knowledge may impact on food and job security through breeding of drought-tolerant crop varieties. This research is partly funded by UP's Institutional Research Themes in Genomics. Pelly received the National Research Foundation Doctoral Innovation Award, as well as the Southern African Biochemistry and Informatics for Natural Products Network (SABINA) Doctoral Fellowship which is funded by the Carnegie

Corporation of New York. In 2008, she received an Award of Merit for outstanding academic achievement from the Department of Biochemistry at the University of Pretoria. She was awarded with the NRF's Honours, Master's and doctoral Innovation Awards. She also received a SABINA Network PhD Fellowship. Her work has also been recognised by the Depart of the Department of Science and Technology Women in Science Award, as a recipient of the Doctoral Fellowship.

Dr Mkhulu Mathe

Institution: Council for Scientific and Industrial Research

Tel: +27 12 8413665

Email: Kmathe@csir.co.za

Theme: Parallel Session on Energy

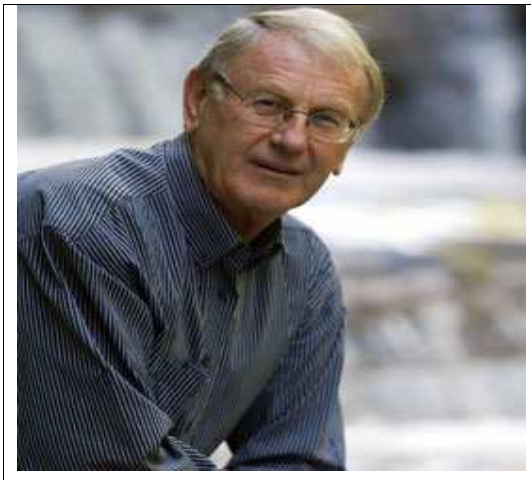
Title: *Present and Future Energy Imperatives of BRICS Economies"*

Biography

Dr Mathe is the current Chair for the University of Johannesburg's PEETS station, he is part of the International Advisory Board for the African Materials Research Society organising the AMRS 2017 in Botswana, an LOC member for ISE 2019, Durban, a Director for Technifin SOC Ltd. and he is also invited to serve on the Advisory Board of Isondo Precious Metals, Pty. Ltd. He contributes as a reviewer to several high impact journals in addition to acting as an examiner for MSc and PhD candidates. He is on the Industry Advisory Board for the Mechanical Engineering Science at the University of Johannesburg.

A Strategic Thinker who leads multidisciplinary research teams-provides Visionary Leadership in Key Partnerships, Strategy and Policy Developments, leads Negotiations, and

Budget Planning, participates in Media communications (Prolific Author, Speaker and Interviewer). Dr Mathe received his MSc in Physical Chemistry from University of Transkei, now Walter Sisulu University. His PhD was received from the University of Georgia in Analytical Chemistry/ Electrochemistry under the direction of Prof JL Stickney. He worked on the electrodeposition and characterization of nanocrystalline II-VI and III-V semiconductor materials. He became a Postdoctoral research fellow at the University of Georgia and continued to work with mercury electrodeposition for MCT detectors.



Prof Roland Schulze

Institution: University of KwaZulu-Natal

Tel: +27 33 2605894

Email: schulzer@ukzn.ac.za

Theme: Parallel Session on Water

Title: *Strategic Management and Conservation of BRICS Water Resources in the Context Global Climate Change*

Biography

Roland Schulze (PhD, University of Natal), is a Fellow of the Royal Society of South Africa and Member of the Academy of Science of South Africa. Retired as Professor of Hydrology at the University of KwaZulu-Natal, he is now a Senior Research Associate at that University and a mentor / consultant to Government and the South African and international water and agricultural industries. Originally a hydrological model developer, his main focus nowadays is on climate change issues (vulnerability, impacts, adaptation as well as policy) in the agriculture and water sectors.

In the climate change field he has lead numerous multi-institutional research projects with national and international funding. He recently completed a 672 page "Handbook for Farmers, Officials and Others on the Adaptation to Climate Change in the South African Agriculture Sector". Author of over 500 scientific publications, he also has wide international lecturing and collaborative research experience. Prof Schulze until recently served on the Minister's National Water Advisory Council.

Ester van der Linde

Institution: Merseta

Tel: +27 10 219 3000

Email: evanderlinde@merseta.org.za

Theme: Parallel Session on Social Science

Title: *Impact and Challenges of Modern ICTs on Youth Identity and Socio-Cultural Choices*

The 3rd Young BRICS Scientist Forum

Mr Stanley Maphosa

Institution: Academy of Science of South Africa

Tel: 27 12 349 6647

Email: Stanley@assaf.org.za

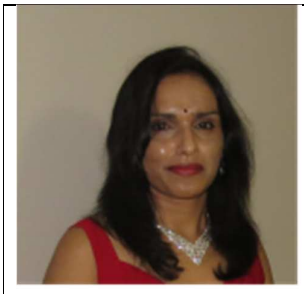
Theme: Parallel Session on Social Science

Title: *Impact and Challenges of Modern ICTs on Youth Identity and Socio-Cultural Choices*

Biography

Mr Stanley Maphosa is the International and National Liaison Manager of the Academy of Science of South Africa (ASSAf). He leads and oversees Strategic Partnerships, Overseas Collaborations, and African Collaborations, Gender in Science Technology and Innovation as well as Young Scientist Liaison. His role at ASSAf is to develop relations with science academies, multilateral science organisation, universities, government departments, parliament, embassies civil society and science councils. He is a science diplomat, involved in internationalisation of science, international science collaborations, and science advice and science communication. He hosts the Regional Office of The World Academy of Sciences, the South African National Chapter of the Organisation for Women in Science for the Developing World, the South African Young Academy of Science and the International Council for Science Regional Office for Africa. Stanley is a Disaster Management Professional (PrDM023) affiliated to the Disaster Management Institution of South Africa, a member of the International Government Science Advisers (INGSA) African Chapter and a member of the American Association for the Advancement of Science (AAAS). He previously worked for 12 years at World Vision International in South Africa and Southern Africa, from grassroots to executive leadership level. Stanley is a trained school teacher with 10 years teaching experience, a communicator, author and negotiator. Currently

studying for a PhD in Social Science at the University of Fort Hare, Stanley holds a Master's degrees in Development Studies amidst other various qualifications.



Dr Ronicka Mudaly

Institution: University of KwaZulu-Natal

Tel: +27 31 2603643

Email: mudalyr@ukzn.ac.za

Theme: BRICS Young Women In Science

Title:

Biography

Served as an examiner for the International Junior Science Olympiad where she interacted and cooperated with senior science educators from several countries. Currently represent UKZN School of Education at the Human Resource Development Council: Mathematics and Science Standing Committee meeting in 2018. This committee is working to specify content knowledge in Initial Mathematics and Science teacher education programmes. Represent UKZN as a partner on the national Fundisa for Change Programme which focuses on transformative environmental education and teacher education. Adapted resources from this programme to develop and teach a new module, Teaching Biodiversity, to practicing Life Sciences teachers. Member of local organizing committee for Southern African Association for Research in Mathematics, Technology and Science Education Conference to be held in 2019. Invited to present a segment on Women and Science by the International Gender, Social Justice and Praxis Network at a Colloquium titled: "Gender, post-truth, populism and pedagogies: challenges and strategies in a shifting political landscape". Serve as Life Sciences Examiner for the National Science Olympiad.

The 3rd Young BRICS Scientist Forum

Mr McLean Sibanda

Institution: The Innovation Hub

Tel:

Email: msibanda@theinnovationhub.com

Theme: Workshop on Youth Innovation and Entrepreneurship

Biography

McLean Sibanda is currently the Chief Executive Officer of The Innovation Hub, the innovation agency of Gauteng Province, South Africa He has held senior and executive positions in private and public sector organisations, including being Intellectual Property Team Leader and Principal Research Officer at Element Six (formerly De Beers Industrial Diamonds), Associate at Adams & Adams Attorneys, Senior Patent Attorney and Acting Executive Director at the Innovation Fund, and Group Executive for Commercialisation at the Technology Innovation Agency (TIA). An admitted attorney of the High Court of South Africa, as well as a registered South African patent attorney, he has wide experience in innovation, intellectual property (IP) policy and management, technology transfer, working with start-ups and IP commercialisation. He has served as an expert to both the Southern African Development Community (SADC) and the African Union (AU). He continues to serve as a resource person to the World Intellectual Property Organisation (WIPO) on a number of IP and innovation related matters. He has also served as an expert to the Department of Science and Technology (DST) on the review of Tanzania National System of Innovation and was the lead drafter of the Intellectual Property Rights from Publicly Financed Research and Development Act and its Regulations, on behalf of the DST. A past

Board member of the CSIR, JM Busha Asset Management, Meniko Records Management Services, and Blue Cube, he currently chairs the Advisory Board of the National IP Management Office (NIPMO) and is Deputy Chair of the Hydrogen South Africa (HySA) Advisory Board. He also serves on the Board of Trustees of the Agricultural Technology Foundation (AATF, Kenya) and Chairs the Board of QualiBasic Seeds (Kenya, South Africa, Zambia). An immediate past Treasurer of the International Association of Science Parks (IASP), and immediate past President of the IASP African Division, in September 2017 he was appointed President of the IASP Advisory Council. McLean holds a Doctorate of Laws (PhD) with University of South Africa (UNISA) and his thesis was entitled, Enabling Intellectual Property and Innovation Systems for South Africa's Development and Competitiveness. He also holds a Masters degree in Engineering from University of the Witwatersrand (Johannesburg), Masters of Laws (LLM) (Commercial Law) (UNISA) degree

Ms Gerald Winkler

Institution: Central University of Technology

Tel:

Email: gwinkler@cut.ac.za

Theme: BRICS Young Innovator Prize Competition

Biography

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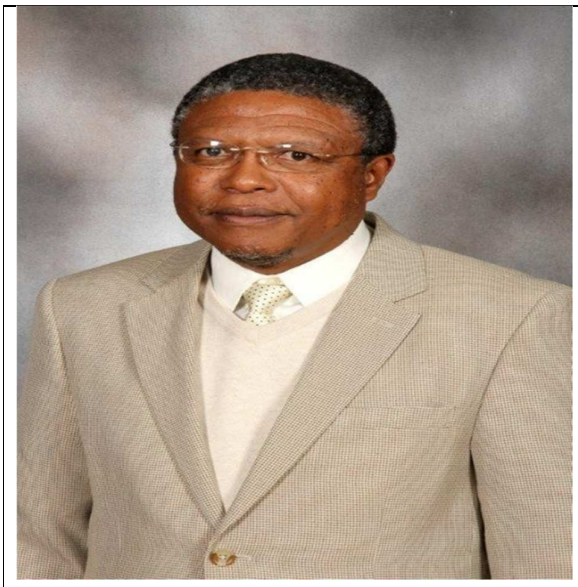

Prof Phuti Ngoepa

Institution: University of Limpopo

Tel: +27 15 268 3269

Email: ngoepep@ul.ac.za

Theme: Parallel Session on Energy

Topic: *Present and Future Energy Imperatives of BRICS Economies*

Biography

He is Professor and Director of the Materials Modelling Centre of the University of Limpopo. Ngoepe is South African Research Chair on Computational Modelling of Materials; Director of the Materials Modelling Centre at UL; and is a CSIR research fellow. In his career that spans over 40 years, he has taught and supervised postgraduate students including nine doctoral students. He has served on the boards of a number of science councils including the National Research Foundation, Mintek and the Council for Geosciences. Among the long list of awards and accolades bestowed upon him over the years is the Order of Maphungubwe awarded in silver in 2008. The order is South Africa's highest honour and is granted by the president for achievements in international areas that serve the country's interest. Its first recipient was former President Nelson Mandela.

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	Patrick Krappie **Institution:** Technology Innovation Agency **Tel:** 012 472 2770 **Email:** Patrick.Krappie@tia.org.za
Theme: Workshop on Youth Innovation and Entrepreneurship	
Title: *Opening Remarks*	

Young Scientists

	Ms Rapulenyane Nomasonto **Institution:** Council for Scientific and Industrial Research **Tel:** 0607626401 **Email:** nomasontor@gmail.com
Theme: Parallel Session on Energy	
Title: The past, present and future prospects of lithium ion batteries cathode materials	
Biography:	

Ms Rapulenyane Nomasonto's post-graduate studies have furnished her with good writing and communication skills as she published two peer-reviewed journal papers (from her MSc work) and one journal paper (honours work. During her MSc, she travelled overseas and this experience has proven to be invaluable for her science skills and adaptability. She visited the University Gent in Belgium and TEI Piraeus in Greece where she learnt the electrospinning technique and electro coating of polymers respectively. Ms Nomasonto's work is based on development of high capacity lithium-manganese-rich cathode materials towards their applications in lithium ion batteries and currently approaching the end of her PhD. Three peer-reviewed journal papers have been published and two patents have been filed on cathode materials synthesis for lithium ion batteries from her PhD work. She has attended symposiums/ conferences locally to present her PhD work and won best oral presentation in the category of energy storage in September 2016 at the renewable and sustainable energy postgraduate symposium in Fort Hare Alice. The candidate will share the information on recent progress, issues and aspects in advanced lithium ion batteries for energy storage and conversion. She strongly believes the BRICS young scientist forum poses a great platform for talented young scientists in their early years of their careers to interact and exchange ideas on the most important issues affecting the general lives of the nationals within the BRICS countries. The platform will greatly influence young researchers ' research going forward due to the interactions and possible collaboration network that may stem from this meeting. The learning environment will encourage the candidate to exchange experiences, ideas and practices with the Bricks participators. She also believes the forum will benefit her immensely, further equip her interaction and discussion skills on a broader spectrum of energy topic beyond technical presentation.

The 3rd Young BRICS Scientist Forum

Dr Nokuthula Peace Mchunu

Institution: Durban University of Technology

Tel: 0313735370

Email: nokuthula@dut.ac.za

Theme: Parallel Session on Energy

Title: N/A

Biography:

During her post-graduate years, she was successful in engineering a xylanase enzyme that had superior characteristics compared to the parent protein. Her Masters project was entitled: "Expresson of a modified xylanase in yeast" and involved enhanced production of a genetically engineered xylanase in different yeast hosts. She was able to published two peer-reviewed articles from the Masters project as well as defended my results at National and International conferences. In 2007, she was involved in collaboration between Lund, Sweden and DUT, Biotechnology and Food Technology in Research headed by Prof Singh and Prof. Permaul. She worked in their labs from late 2007 till early 2008 and in 2009 retumed for 4 months to work other aspects of the collaboration. In 2009, when Prof Singh and Prof. Permaul started collaborating with a Centre for Chemical Biology University Sains Malaysia, she was also approach to join in this collaboration in plant genome project. She spent 2 years in Malaysia from 2009-2012, working on the Rubber genome and the thermophilic fungus which was isolated here in Durban.

Her doctoral project focused on sequencing the genome of the fungus Thermomyces lanuginosus, cloning of novel and industrially-important genes and identification of genes in degradative pathways of biopolymers. She was able to published three peer-reviewed articles from this project as well as presentation national and International. She is currently continuing in this work using data obtained from genome can elucidate numerous enzymes for industry.

Dr Tara Olivia Southey

Institution: Stellenbosch University

Tel: +27 82 889 0896 / +27 808 3296

Email: tara@sun.ac.za

Theme: Parallel Session on Water

Title: Assessment of the grapevine and environmental interactions: integrating weather and satellite data in the context of climate change for improved adaptation strategies, South Africa**.**

Biography

EDUCATION

2013-2016	**PhD** degree, specialising in Viticulture at the University of Stellenbosch. Study title "*Integration of climate, grapevine growth and grape ripening characteristics in the modelling of cultivar suitability to specific environments*"
2012	Course in **Satellite Remote Sensing** at Stellenbosch University Department of Geography and environmental studies
	Course in **Spatial modelling** at Stellenbosch University Department of Geography and environmental studies

2008-2010	**MScAgric** degree, specialising in Viticulture at the University of Stellenbosch and the ARC Infruitec-Nietvoorbij. Study title "*Effect of climate and soil water status on Cabernet Sauvignon (Vitis vinifera L.) grapevines in the Swartland region with special reference to sugar loading and anthocyanin biosynthesis"*
2004-2007	**BSc Agric** degree from Stellenbosch University majoring in Viticulture and Oenology

WORK EXPERIENCE & TRAINING

2018	**Post Doc, project leader** "Climate analysis, remote/proximal sensing and GIS data central to SA vineyards of the future." Industry project leader: building online spatial decision making tool for the wine industry, to aid long and short term planting and management strategies Industry project leader: climate data management, automating protocols for climate data importing and management
2017	**Post Doc, project leader** "Climate analysis, remote/proximal sensing and GIS data central to SA vineyards of the future"
2013-2016	**Junior Researcher** at Stellenbosch University focusing on Viticulture, climate and satellite remote sensing, at the department of Viticulture and Oenology. PhD study Part-time, project manager Harvest and analysis lab management and training post graduate students
2014	Awarded **best student presentation** at the 2014 South African society for Enology and Viticulture international conference.
2013	**International exchange/collaboration** with Fondazione Edmund Mach, San Michele All'Adige with the GIS and Remote sensing Unite under supervision of Dr Roberto Zorer. **International exchange/collaboration** with RENNES 2 UNIVERSITY, Place du Recteur Le Moal, 35043 Rennes Cedex, France under supervision of Dr Valerie Bonnardot and Dr Hervé Quénol.
2012-2013	**Junior Lecturer** at Stellenbosch University focusing on Viticulture and climate, at the department of Viticulture and Oenology, Stellenbosch University.
2010-2012	**Technical assistant** at Stellenbosch University in the department of Viticulture and Oenology, specifically supporting viticulture research for Dr Albert Strever. Training students for specific measurements: Plant and soil water measurements, Thermal imaging of seasonal progression in ripening, sampling and analysis.
2009-2010	**Technical assistant** at Agriculture Research Council at Nietvoorbij (ARC), supporting Dr Philip Myburgh Measurements: Plant and soil water measurements

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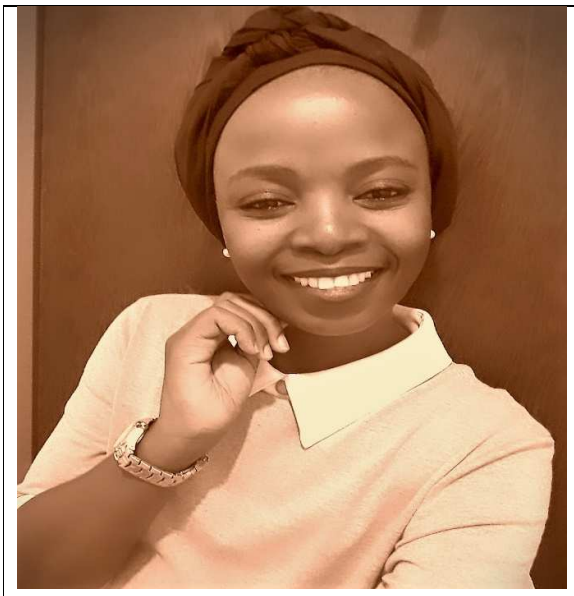

Ms Akhona Nkenkana

Institution: Thabo Mbeki African Leadership Institute

Tel: +27123104807

Email: anakhona@gmail.com

Theme: Parallel Session on Social Science

Title: *The Intersection of modern ICT Technologies and Cultural Identity in South Africa: A Decolonial Perspective*

Biography:

Ms Akhona Nkenkana has been an Assistant Director for 7 years with Research, Statistics as well as Monitoring and Evaluation experience of over 9 years. Experience includes Research both qualitative and quantitative, research instruments design, data compilation and analysis as well as development of monitoring and evaluation frameworks. Extensive experience in project management and coordination of big projects such as census and community surveys. Proven ability to provide technical training in research, monitoring and evaluation (qualitative and quantitative) at national, provincial and district levels. Worked with a team responsible for development of Integrated Indicator Framework helping the country report on development indicators from Integrated Development Planning (IDPs), Provincial Development Plans (PDPs), Medium Term Strategic Framework (MTSF), National Development Plan (NDP), Agenda 2063 right up to Sustainable Development Goals (SDGs). Work that has sharpened one's skills of compiling development indicators and computing methods of measuring each indicator. Ms Nkenkana is experienced thought

leader and strategic thinker that is multi-task and problem-solving oriented, and continually stay abreast of the latest advancements in the systems of government and monitoring and evaluation frameworks. She is an Alumni of the Thabo Mbeki African Leadership Institute as well as the World Economic Forum Global Shaper with extensive experience in international diplomacy, coordination and policy development. These two institutions have sharpened her leadership skills and have seen her serving as President for Isibalo Young African Statisticians, a continental programme in service of emerging researchers and statisticians in Africa and for Africa's development.

Dr Alanna Rebelo

Institution: Stellenbosch University, Department of Conservation Ecology & Entomology

Tel: 0812189284

Email: alanna.rebelo@gmail.com

Theme: Parallel Session on Water

Title: *Ecosystem services provided by South African palmiet wetlands: can we justify the true cost of development?*

Biography:

Alanna Rebelo is a young wetland scientist with an interest in interdisciplinary research to help find solutions to complex problems. She is passionate about issues relating to sustainable development, especially of emerging economies like those of the BRICS nations. Her doctoral research on wetlands has shown that their benefits to society are manifold and irreplaceable, and yet they are often the most neglected and degraded ecosystems. Alanna is currently involved in a postdoctoral research project on the social benefits of investing in ecological infrastructure in South Africa. She has published in high

quality international journals, and has also made an effort to communicate her science to the public. Alanna has shown an interest in other BRICS nations by attending a conference in China, as well as a young researcher's forum in Indonesia, which was well attended by young researchers from China and India. Dr has peer reviewed 9 publications.

Mr Alberto Francioli

Institution: Research Alliance for Disaster and Risk Reduction (RADAR), Stellenbosch University

Tel: 0842081870

Email: albertofrancioli@sun.ac.za

Theme: Parallel Session on Energy

Title: *Investigating energy usage among low-income households and the implications for risk*

Biography:

Alberto has both worked and studied in the field of disaster risk science quite extensively, being involved in numerous research projects investigating communities and infrastructure at risk to both natural and technological hazards, evaluating vulnerability and explaining means of enhancing resilience and reducing risk. In particular Alberto has extensive experience working in the field, working with and engaging with vulnerable communities on the ground to assess risk. Recently he has completed research investigating energy use strategies of low-income households and the implications such strategies have upon health and fire related risk issues. The findings from this research shed light on the plight of many poor South Africans who despite access to electricity, are forced to continue utilizing dangerous sources of energy such as kerosene for activities such as cooking, boiling water and heating because it is more affordable. However, the usage of paraffin comes at great

cost to their health and well-being, and poses a significant fire risk, all of which can lead to significant disruption of their livelihoods, injury, loss of property and even death. Alberto has unfortunately not had the opportunity to engage with or collaborate with researchers and scientists from other BRICS Nations, however has significant experience working and collaborating with researchers from institutions across Africa through the Periperi U network of African universities, of which his institution is a partner. One believes that this forum will provide and excellent platform to meet and engage with scientists and likeminded people from the BRIC nations, to share knowledge, discuss and debate research and ideas, as well as initiate prospects for future collaborations and engagements.

Mr Anton Pillay

Institution: Vaal University of Technology

Tel: 0781182526

Email: antonpillay@Hotmail.com

Theme: Parallel Session on Energy

Title: *The latency of firewood*

Biography

Mr Anton Pillay has participated in the following:

Non-STI forums / Awards

- African Union, Ethiopia, 2017, Research Award to interview
- University of Bordeaux, France, 2012, Presentation on South Africa's role in the BRICS block
- Africa University, Zimbabwe, 2013, Presentation on Rural Agriculture
- Institute for Security Studies, Ethiopia, 2011, Presentation on the African Union
- National Research Fund Scholar 2013

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- Global Excellence Scholarship 2016-2018

Ms Arvitha Doodnath

Institution: Vaal University of Technology (VUT)

Tel: 0169509890

Email: arvithad@vut.ac.za
msdoodz789@gmail.com

Theme: Parallel Session on Social Science

Title: *The impact of social media on the identity of youth, cultural choices and sociability*

Biography:

Arvitha is an admitted attorney, who holds an LLB (Law) and LLM (Medical) and is currently doing her LLD through the University of KwaZulu-Natal (Howard College). She served her articles at J Leslie Smith Attorneys in Pietermaritzburg. She was a legal researcher at the Helen Suzman Foundation and is now employed as a lecturer at Vaal University of Technology. She is a goal driven individual who strives to give her best in any task she is given. She is particularly concerned with exploring the interface between law and the provision of Health Services within the framework provided by the Constitution. She is also concerned with issues dealing in Science and Technology and strives to address such issues.

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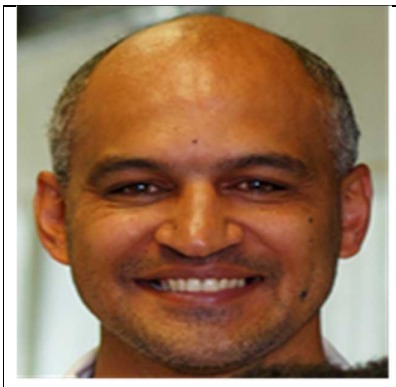

Mr Ashton Swartbooi

Institution: Council for Scientific and Industrial Research

Tel: 012 841 4475

Email: aswartbooi@csir.co.za

Theme: Parallel Session on Energy

Title: *Composite cylinders for portable hydrogen applications*

Biography

Ashton started working at the CSIR in 2004, after completing his M.Sc (Chem Eng) at the University of Cape Town. His thesis entitled "Precipitation of nickel and cobalt using different reactor configurations" where sulphide chemicals were used to treat a downstream process stream to improve nickel and cobalt recovery. His work at the CSIR started with looking at redox flow batteries, and improvements in the electrolyte solution. Vanadium was the costly element of the electrolyte, and work centred around replacing vanadium with a cheaper species, yet maintaining the same efficiency. An internal report suggested the use of a Cr/Br couple, but further optimisation studies were not completed. Further work focused on client specific needs, with a key focus on the use of fluidised bed technology. Various pilot plant tests were conducted to determine the efficiency of said reactor for various combustion and roasting trials. In 2007, to help look at the mass production of carbon nanotubes (CNTs), waste PET was shown as a suitable feedstock to grow CNTs en mass in a fluidised bed reactor. Ashton then moved on to hydrogen, and more specifically, hydrogen generation using electrolysis. An electrolyser unit was developed, in collaboration with partners, that allowed the production of hydrogen at 100bar directly. The unit was shown as a prototype and first of it's kind. During this time, the Hydrogen South Africa (HySA) Centres started, and work on electrolysers was shifted to other units. As part of HySA, his key focus areas include Hydrogen Safety, especially in the laboratory, as well as

high pressure composite cylinders. These cylinders need to be lightweight to enable the storage of hydrogen on-board portable applications. Current work entails the development of a suitable load-bearing liner that could decrease the cost of carbon fiber usage during the filament winding.

Mr Bahle Mazeka

Institution: University of Kwa-Zulu Natal

Tel: 073 889 7295

Email: elmazeka@gmail.com

Theme: Parallel Session on Water

Title: *The Development of a Participatory Community-Based Mapping Methodology for Climate Smart and Resilient Informal Settlements: A Case Study of Quarry Road West Informal Settlement, Durban, South Africa.*

Nomination Statement:

Climate change is a cross cutting issue that will determine the extent to which the SDGs can be achieved, particularly in countries in the south. Goal 13: Take urgent action to combat climate change and its impacts is directly addressed by the proposed project: Climate Smart and Resilient informal settlements. The Quarry Road West informal settlement is located in the lower reaches of the river where it joins the much larger uMngeni River. The settlement is located on a narrow flood plain of the river and is impacted both by flooding from the river and from the road network that surrounds the settlement. Life in the settlement is extremely precarious as a result of unemployment, poverty, poor quality housing, lack of adequate services, crime, pollution and flooding. The settlement therefore embodies all the major challenges that face many informal settlers in South Africa, as it is an assemblage of multiple vulnerabilities and risks. The globalisation processes poses developmental

challenges as it is happening at a pace that renders formal planning process and capacity insufficient leading to shortages of readily available housing stock, resulting in people resorting to informal settlements (also known as 'slums' in the global discourse) as highly successful housing solutions of convenience. These settlements are normally characterized by substandard building materials and conditions which makes them particularly vulnerable to extreme weather conditions and climate change in general, and therefore; in dire need of developing locally tailored 'climate-smart' (adaptation) strategies. Participatory community-based mapping is a methodology that seeks to work in partnership with the community concerned during all stages of a project cycle and represent local community spatial knowledge with expect skill. The participatory governance method empowers community members, reinforce the dignity, and humanity of the community concerned, while enhancing communication relationships between all stakeholders. Therefore, this study is of utmost importance as it develops a co-produced booklet, which draws on both expert and local knowledge, which identifies, documents and evaluates locally tailored 'climate-smart' (adaptation) strategies from vulnerable to extreme weather conditions and climate change in general, in the upgrading of informal settlements.

Mr Basanda Nondlazi

Institution: Council for Scientific and Industrial Research and University of KwaZulu Natal

Tel: 0128413872 or 0732083252

Email: BNondlazi@csir.co.za

Theme: Parallel Session on Water

Title:

Biography:

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Mr Basanda Nondlazi is a South African citizen in possession of a Master's degree in Ecosystems Ecology from the University of the Witwatersrand, conferred in 2016.

His research interests is in Ecological Remote Sensing of freshwater ecosystems, and therefore falls in the thematic area of water. His research contributes to the African continent because the knowledge and skills that govern how we develop RS toolkits for monitoring wetland ecosystems are applicable to other ecosystems. Therefore, our work has wide application and has potential to address monitoring needs of other African ecosystems besides wetlands. We do not rely solely on RS data we conduct ground based ecological sampling of vegetation. We are to obtain answers to some of the questions we pose from computer models designed to simulate various aspects of change in the structure and functioning of wetlands. Our goal is first to understand the ordinary arrangement of plant communities and then to assess how traits vary and form consocies within the plant communities and how environmental factors guide the formation of these connections. Our most important goal is to discover new information (RS variables) that will improve our understanding of the spatiotemporal distribution wetlands and fresh water ecosystems in general. A major focus of our work is to develop RS approaches and applications for extracting and mapping plant traits along wetland environmental gradients. Another area of study is the assessment of approaches for processing this innovative information by comparing empirical modelling, radiative transfer models and hybrid models as well as the use of machine learning algorithms.

Dr Bingwa Ndzondelelo

Institution: University of Johannesburg

Tel: 011 559 3209 / 081 405 3666

Email: nbingwa@uj.ac.za

Theme: Parallel Session on Energy

The 3rd Young BRICS Scientist Forum

Title: *A potential disaster from a promising field of biofuels*
Biography **Education** • Ph.D_ Chemistry-Catalysis (University of Johannesburg, APK in collaboration with Friedrich Alexander universitat Erlangen-Nurenburg (Germany) (Application of mesoporous metal oxides in catalytic oxidation reactions) • M.Sc_ Chemistry-Catalysis (University of Johannesburg, APK) (Application of well-defined nanoparticles as catalysts for kinetic studies of model reactions, and their immobilization on mesoporous SBA-15 for olefin oxidation) • B.Sc Honours (Walter Sisulu University, NMD) • B.Sc (Water Sisulu University, NMD)

Dr Bonani Seteni

Institution: Council for Scientific and Industrial Council (CSIR)

Tel.: +27 12 841 2128

Email: BSeteni@csir.co.za

Theme: Parallel session on Energy
Title:
Biography: Dr Bonani Seteni obtained a Doctor of Philosophy (PhD) degree at the University of Johannesburg (UJ) in 2018. As is, he is a Postdoctoral Fellow at the Council for Scientific and Industrial Research (CSIR) in Pretoria where he is conducting a lithium/sodium-ion battery research for energy storage devices. He PhD research was focusing on the

development of novel type of cathode materials with integrated structures for LIBs. The research was enthused by the fact that South Africa, as a country, we have been solely dependent on fossil fuels as energy source (electricity) and that is not conducive for the country's fast-economic growth, hence diversity in energy outlets is imperative for the country. Out of his PhD studies he managed to generate eight manuscripts (one published, two accepted, two submitted, and three ready for submission) two patents and won three awards.

Ms Carol Zethu Ngwenya

Institution: University of Cape Town

Tel: 0760868827

Email: Zethucarol@Gmail.com

Theme: Parallel session on Energy

Title: *Waste to Energy: Confectionery waste as a substrate for renewable energy production*

Biography:

Ms Carol Ngwenya is from Mpumalanga province and graduated with a National Diploma in Biotechnology (2012) at the Cape Peninsula University of Technology (CPUT), faculty of applied sciences. The course focused mainly on bioethics and the impact of biotechnology on the environment. She went on to complete a Bachelor of Technology (B.Tech) in Biomedical Technology (2013) at CPUT, faculty of health and wellness sciences. The B.Tech focused on industrial Microbiology with a strong emphasis on Molecular Biology. She currently holds a Magister technologiae (M.Tech) in Environmental Health from the CPUT. The masters researched a multidiscipline, integrating the field of Nanotechnology and Biotechnology to address detrimental

environmental concerns. Currently she is strategically registered for MSc (Eng) Chemical engineering at the University of Cape Town, which will catapult her toward obtaining a PhD. Her current research project involves the valorisation of waste; converting waste to energy working with the Center of Bioprocess Engineering (CeBER) under the supervision of Prof Sue Harrison and Dr Mariette Smart. My interests in research are inspired by my passion and desire to build a body of knowledge for interdisciplinary research. To effectively incorporate the interdisciplinary solutions for the sustainable development of South Africa. With South Africa now slowly moving towards the development of a bio-based economy where Biotechnology contributes to a significant share of economic output. I hope to be part of the generation that will pioneer and lead the development of a sustainable bio-based economy.

Dr Nonjabulo Prudence Gule

Institution: Stellenbosch University

Tel: 021 808 3170

Email: njabu@sun.ac.za

Theme: Parallel Session on Water

Title:

Biography:

Dr Gule received her PhD at the University of Stellenbosch which was conducted under the supervision of Prof Cloete a microbiologist with unparalleled experience in water microbiology and Prof Klumperman who is a world leader in materials sciences (A-rated NRF researcher). The main aim of her PhD study was to produce antimicrobial water filtration membranes. Several approaches to fabricate these materials were investigated. She currently has 14 published peer-reviewed articles and two in press, 2 book chapters, 2 patents and multiple conference presentations. Dr Gule is also an avid popular science

writer, with articles in the mail and guardian and the conversation. She has also communicated her research in various platforms (radio, TV and live audiences). In 2013, she was named one of the Mail & Guardian Top 200 Young South Africans as well as the Cosmopolitan magazine top 20 awesome women under the age of 35. Additionally, she volunteers and does a lot of outreach programs in high schools. She enjoys communicating science to high school learners was recently invited to inspire thousands of girls from under privileged communities in the western cape during the Women in Mathematics (2017 Edition). She also gave a plenary lecture in the annual South African Centre for epidemiology modelling and analysis (SACEMA) conference. She is currently a researcher at the University of Stellenbosch, responsible for coordinating the BSc Hons Polymer Science practical course and is part of the first year general chemistry team. Five students have graduated under her supervision and she currently supervises five post-graduate students. She also has collaborations with the silk group at Oxford University (Prof Fritz Vollrath) with joint student supervision and holds a Competitive Support for Unrated Researchers grant from the DST/NRF and is part of an EU Horizon/2020 RiSE staff exchange grant.

Mr Hope Baloyi

Institution: Nelson Mandela University

Tel: 072 217 4882

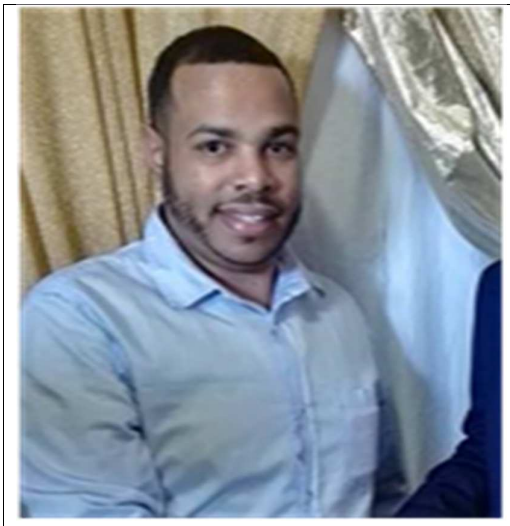
Email: s212376950@mandela.ac.za

Theme: Parallel Session on Energy

Title: *Agglomeration of Coal Fines using microalgae slurry as a potential route of upgrading the discard Coal Fines.*

Biography:

Mr Hope Baloyi a registered PhD student, and his project is relevant to one of the conference themes (Energy). He has a biological science background, and has also acquired applied science techniques of interest to process chemists/chemical engineers.. His research interests are in the following areas: Renewable & Sustainable Energy: Waste beneficiation: Process & Product Development: Coal Chemistry & Biofuels



Mr Jolindon Petersen

Institution: Nelson Mandela University

Tel: 0749202725

Email: Jolindon.petersen@mandela.ac.za; Jolindon.Petersen2@nmmu.ac.za; jolindonpetersen@gmail.com

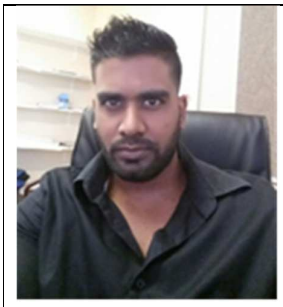
Theme: Parallel Session on Social Science

Title:

Bibliography:

Mr Petersen is currently researching the experiences of DST-NRF funded interns, specifically looking at interns in the Eastern Cape region. His aim is to complete the Masters in Sociology mid-this year. He is fascinated by the knowledge and skills that one acquires through the mentoring and developing phase of the internship programme. He also tries to understand where internships emerged, and how it has developed over time. If we look at South Africa, and in particular to the Eastern Cape Province, we can note that there is a high level of youth unemployment, amongst these unemployed are youth and young graduates who have completed tertiary education, and struggle to find a career where they can excel, and enjoy. Many graduates are unemployed and so to our economy is dysfunctioning. If we can evaluate what the skill is to be a good intern I am sure it will help a lot in the near future.

In addition, with prospective Job applications. Thus, his research is imploring experiential learning as well as career development Theory. The DST-NRF internship programme is a platform for graduates to develop and become wise, and to acquire arrange of practical, personal, as well as emotional skills to cope with the changing demands globally, as well as nationally, and locally. If we equip more youth and graduates with the proper tools for completing tertiary education, he believes that more jobs will be easily created, and developed.



Mr Kavandren Moodley

Institution: Council for Scientific and Industrial Research (CSIR)

Tel: 031 242 2385

Email: kmoodley1@csir.co.za

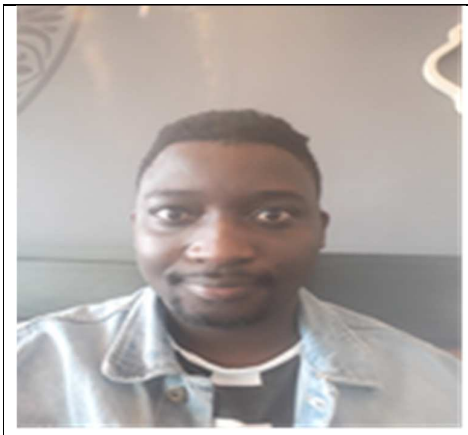
Theme: Parallel Session on Water

Title: *Impact of Science, Engineering and Technology (SET) Solutions in Addressing Water Quality: A Case Study Approach*

Biography:

Kavandren is a capable and qualified Environmental Specialist currently employed at the Council for Scientific and Industrial Research (CSIR), KwaZulu-Natal, South Africa. He has a Master of Science Degree in Environmental Sciences from the University of KwaZulu-Natal, with more than six years work experience in the field. At the CSIR he has been involved in various environmental studies both locally and more broadly in Africa. These collectively include Preliminary Environmental Assessments, Environmental Impact Assessments (EIAs), Environmental Management Plans (EMP's), ensuring compliance to Environmental Management Plans in the form of Environmental Control Officer duties, and wastewater monitoring programs. Collaboration with researchers and specialists (both locally and more broadly in Africa) was an important component of undertaking these

projects/studies. Kavandren is also a highly capable researcher. His MSc. research examined the impacts of catchment land use on benthic diatoms, water and sediment quality within three highly urbanised and industrialised river systems flowing into the Durban Harbour. Various tools were employed in this study including analytical, bio-monitoring, GIS and Multivariate Statistical techniques. His research resulted in four publications in International Journals with high impact ratings. Kavandren hopes to use this forum as a platform to network with scientists from other BRICS countries, share ideas, knowledge and experiences, and better understand the challenges and solutions in the faced in the water sector.



Mr Khanya Vilakazi

Institution: Human Science Research Council

Tel: 0333245000

Email: kvilakazi@hsrc.ac.za

Theme: Parallel Session on Social Sciences

Title: *Exploratory study on the use of quadratic voting as a methodology to measure a community's preference on key areas of focus through mobile devices*

Biography:

Mr Vilakazi is a junior researcher at the Human Sciences Research Council. In addition, he is particularly interested in innovative research methodologies that can be used in rural and urban contexts. He enjoys all aspect of the research process especially data collection, analysis and collaborating with international peers. His current research interests include economic development within the township context and the impact of foreign nationals and their small businesses on the township economy. His education background is as follows:

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MSocSc (Political Science) | University of KwaZulu-Natal | 2018

BSocSc Hons (International Relations) |UKZN | 2014

BSocSc (Politics, Philosophy & Criminology) | UKZN | 2013

Mr Khaya Pearlman Shabangu

Institution: Durban University of Technology (DUT)

Tel: 0318199288

Email: shabanguk@mut.ac.za

Theme: Parallel Session on Energy

Title:

Biography:

Mr Shabangu has acquired solid and sound water and wastewater treatment skills during his Masters study. He is currently registered with Durban University of Technology (DUT) for my Doctor in Engineering research which critically addresses the issues of scaling-up an innovative bioenergy producing Microbial Fuel Cell (MFC) whilst treating industrial wastewater. The proposed unit will be used as a basis for "electrocigens" which is vital for renewable electricity production. This concept is fresh and new in research especially in the continent of Africa where this study would address and share ground breaking techniques to commercialize this technology that will enhance all BRICS national towards a green technology oriented society. His research output has been characterized through; engaging in DUT Faculty of Engineering Research forum, the Young Water Professionals Biennial 1st Africa Wide Conference (YWP), CHISA 2016 in Prague and the IAENG world congress on Engineering and Science held in San Francisco in USA, 2018.

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Ms Khuthala Somdaka

Institution: Coega Development Corporation

Tel: 0734323083/0414030715

Email: khuthala.somdaka@coega.co.za

Theme: Parallel Session on Energy

Title: *Energy Security, Diversity & Socio-economic Development*

Biography:

Ms Khuthala Somdaka ;holds a Master's of Science in Chemical Engineering from North West University. The MSc program is mainly under Biofuel and Renewable energy research group which looks at climates change, environmental impact of energy sources and the value of introducing alternative sources of energy. In addition, she holds nuclear procurement and nuclear grade Zirconium production training certificate both from South African Civil Nuclear Energy Training program (SACNET) in People's Republic of China. All the mentioned, certification Khuthala demonstrate excellent ability in research areas. The SACNET program is the most section that eluded Khuthala skills (please see attached certificates). Currently, Ms Somdaka works at the Coega Development Corporation as the Energy Development officer. One of her KPI is to assist the energy team with technical assistance ranging from investment promotion to procurement. In addition, Khuthala is activlly In participated as a Generic Mentor for 2017 Global Cleantech Innovation Program-SA. The program promotes clean technology innovation and supporting SMEs (Small Medium Enterprises) working on solutions related to energy efficiency, green buildings, renewable energy, transportation, waste beneficiation and water efficiency. The initiative is supported and implemented by Global Environment Facility (GEF), United Nations Industrial Development Organization (UNIDO) and Technology Innovation Agency (TIA). Also, she is a deputy chairperson of South African Young Nuclear Professionals Society (SAYNPS) for the Eastern Cape Chapter.

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Mr Lavhelesani Rodney Managa

Institution: Human Sciences Research Council (HSRC);

University of Pretoria (UP)

Tel: 012 316 9717

Email: RManaga@hsrc.ac.za; lavhe.managa@gmail.com

Theme: Parallel Session on Water

Title: *Towards improved water use and management in the context of climate-smart agriculture: prospect for smallholder farmers in BRICS countries*

Biography:

Mr Lavhelesani Rodney Managa is currently working as a Researcher at Africa Institute of South Africa-Science & Technology Research Programme within Human Sciences Research Council (HSRC). His research work in this programme focus at the role of science, technology and innovation in enhancing agricultural productivity, and ensuring value addition to the produced output. In line with the chosen theme for this forum, he has done research work on water quality for agricultural productivity, water accessibility by emerging black farmers, and water conservation in the context of climate-smart agriculture. Some of the work have been published in the international accredited journals, while some of the work are in progress. Among BRICS countries, he has been involved in the research collaboration between South Africa and People Republic of China, where he participated in various initiatives under FOCAC, OBOR, and China-Africa Joint Exchange Programme. For instance, he co-edited the book title "Belt and Road Initiative: alternative development path for Africa" (in press); this book incorporated number of African authors and also authors from Chinese institutions such as CASS, CIIS. He will be also acting as Chief Rapporteur in the upcoming China-Africa Joint Exchange Seminar on opportunities and challenges of China-Africa industrialisation cooperation, to be held at Pretoria, 08 May 2018. As much as he has demonstrated independence ability to successfully run research

project from start to its completion with minimum supervision, he also has the ability to work in a team, and building collaboration both within and outside my Institution. Mr Managa has peer reviews in 4 publications and participated in 3 international Forums.

Mr Lethula Mofokeng

Institution: University of Witwatersrand and Council for Scientific and Industrial Research

Tel: 076 0312 400

Email: mofokengexcellent@yahoo.com

Theme: Parallel Session on Water

Title: *Preparation of ZnO photocatalysts for enhanced photocatalytic degradation of BPA in aqueous environments.*

Biography:

Lethula Excellent Mofokeng received his BSc and BSc (Honours) degree at the University of Limpopo (Turfloop campus) in 2014. He obtained his Masters degree in Nanoscience at the University of Johannesburg (Doornfontein campus) where his research focus was to fabricate cheap, low energy consumption sensors using carbonaceous nanomaterials for various sensing applications. Lethula Excellent Mofokeng was awarded with PhD scholarship at the Council for Scientific and Industrial Research since 2017 and enrolled in collaboration with the University of Witwatersrand, where his research focus is to develop efficient water treatment photocatalysts, nanostructured nanomaterials and electrochemical sensors for detection of water contaminants.

The 3rd Young BRICS Scientist Forum

Dr Lindani Mdlalose

Institution: Council for Scientific and Industrial Research (CSIR)

Tel: 0128413645

Email: mdlalose1@csir.co.za

Theme: Parallel Session on Water

Title: *Performance Evaluation of Polymer Composites for Wastewater Remediation: Implications for Water Reuse*

Biography:

Lindani Mdlalose received her bachelor degree in chemistry from Nelson Mandela University, in 2011. She then moved to the University of Johannesburg where she completed her master degree in chemistry (Cum-laude) in 2014. Afterwards, she enrolled for PhD in chemistry at the University of the Witwatersrand under the supervision of Prof Luke Chimuka. At that time she obtained a PhD studentship at the Council for Scientific and Industrial Research (CSIR). Her thesis focused on synthesis, characterization and performance evaluation of polymer composites for wastewater remediation. Mdlalose was awarded her PhD degree in 2018 and still based at the CSIR. She has peer reviewed 3 publications, participated in 3 STI Forums, and was awarded 2 scholarships.

The 3rd Young BRICS Scientist Forum

Mr Lindumusa Myeni

Institution: Agricultural Research Council

Tel: 079 427 4281

Email: MyeniL@arc.agric.za

Theme: Parallel Session on Water

Title: *Evaluation of DPMETHS model for improved estimation of open water evaporation in South Africa*

Biography:

Lindumusa is involved with the InnovAfrica project which aims to integrate sustainable agricultural management practices, innovative institutional approaches with novel extension and advisory services to improve agricultural productivity while sustaining environment under climate change. Lindumusa strives to utilize every available "pulpit" in his efforts to raise awareness about this issue. Currently he has two articles under review for the publication. Moreover, he also has a repetitive and traceable history of presenting his findings for winder-dissemination of his search outcomes. He has thus far peer reviewed in 3 publications.

The 3rd Young BRICS Scientist Forum

Mr Lizwe Mdakane

Institution: Indabuko Institute

Tel: 0612667375

Email: lizwe@indabuko.co.za

Theme: Parallel Session on Energy

Title:

Biography:

Mr Lizwe Mdakane was born in 1988 (Madadeni, KwaZulu-Natal). He is a co-founder and Director at Indabuko Institute (Pretoria, South Africa). Where he is responsible for Strategic Planning and Infrastructure. Lizwe has multi-disciplinary qualifications in science. These include a BSc degree in Computational Physics (UKZN, PMB). An Honours degree in Applied Physics (UKZN, PMB). An MSc degree in Computer Science (UKZN, Westville). Mr Mdakane is also a PhD candidate in Electronics (UP and Meraka Institute, CSIR). He plans to finish his studies by end of 2017. As part of his PhD studies, he is currently working with the Satellite SAR group in CSIR Meraka to conduct original remote sensing research for improved understanding, management, and monitoring of South African maritime activities. His research is focussed on developing pollution (oil spills from ships) surveillance framework over the South African Oceans Exclusive Economic Zone using Synthetic Aperture Radar satellite images. In 2016, he co-founded a proudly South African R&D start-up company named Indabuko Institute with a goal to provide the next generation energy storage systems. The Indabuko Institute intends to intervene and provide energy storage solutions (build energy storage systems) to improve energy reliability and efficiency, resulting in optimum efficiency and cost-effectiveness for the power industry and its consumers in South Africa and the rest of the African countries.

The 3rd Young BRICS Scientist Forum

Ms Lufuno Ligavha-Mbelengwa

Institution: Council for Geoscience

Tel: 0128411256

Email:

lligavhambelengwa@geoscience.org.za

Theme: Parallel Session on Water

Title: *Emerging organic contaminants as environmental tracers for the determination of ingress points*

Biography:

Ms Lufuno Ligavha-Mbelengwa started doing research when she registered for her Honours degree in Geology where she researched about "Mineralogical and Geochemical characterization of granite rocks". Although this was a short dissertation, she became more passionate about science and research in general. After completing my Honours degree, she was motivated to proceed with her Masters degree since she had noticed how important research is, especially looking at various crisis that we are faced with on a daily basis. She considered doing Masters in Geohydrology focusing on the "Groundwater chemistry characteristics in Beaufort West". This was a full dissertation done under the "Karoo Deep Drilling Programme" which is an ongoing project at the Council for Geoscience (CGS). The data and results obtained during the study therefore contributed to the above-mentioned project. Ms Ligavha-Mbelengwa is currently working on a publication for the work that she did during Masters Research. In 2017; after completing her Masters degree, she was employed by CGS (a research organisation) under an internship contract. Therefore, in 2018 she was employed permanently to a Junior Scientist position. Since she joined the organisation, she has been involved in the Mine Water Management Programme (Ingress control task) and the Karoo Deep Drilling Programme (Hydrogeology and Drilling supervision tasks). In the former, the main focus is to use emerging organic contaminants

as tracers for the determination of ingress areas in the Witwatersrand basin. This study is of great value because after tracing the water pathways, measures such as building canals to divert the water will be implemented.

Mr Luzuko Tekeni

Institution: Nelson Mandela University

Tel: 041 504 9919

Email: Luzuko.tekeni@mandela.ac.za

Theme: Parallel Session on Social Science

Title:

Biography:

Luzuko Tekeni is a lecturer in the Faculty of EBEIT under the Information and Communication Technology department at Nelson Mandela University in Port Elizabeth South Africa. Luzuko recently completed his Masters in IT (Cum Laude) and is currently enrolled for his PhD in IT at Nelson Mandela University. His current research topic investigates the security awareness of home users in South Africa. His research interest includes Information Security, Cyber security, Privacy, Communication Networks, and Security education, training and awareness.

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Dr Madonna Vezi

Institution: University of KwaZulu-Natal

Tel: 072 700 6245

Email: madonnavezi@gmail.com

Theme: Parallel Session on Water

Title: *Variability in Invertebrate Communities of Selected South African River Dominated Estuaries: Clues for the Risk of Flow Alterations and Water Resource Use.*

Biography:

Dr Madonna Vezi a young researcher and has just graduated with a PhD in April 2018. As part of her PhD study she investigated the use of invertebrates to evaluate the threats associated with land use activities and climate change (through environmental variability) for the protection of the Amatikulu, Thukela and Umvoti Estuaries in KwaZulu-Natal. This was a research thesis. She is currently preparing some of her PhD thesis chapters as manuscripts for submission to international peer reviewed Journals. One of the chapters has been provisionally accepted in the International Review of Hydrobiology Journal. While she is preparing her chapters for publication, she has also started with her post-doctoral research project where she is looking at the effects of aquatic alien invasive fauna in a protected tropical estuarine ecosystem in KwaZulu-Natal. She secured funding for this project from the Center of Excellence for Invasion Biology (CIB) and from the South African National Biodiversity Institute (SANBI). Dr Vezi's biological knowledge has broadened her research experience including field and laboratory data collection, analyses and collation. She has made a number of local and international conference and public presentations as well as made reports to various managers and stakeholders (including SAPPI, Department of Environmental Affairs and Department of Water and Sanitation) on

her research. She has made research visits to various institutions including the Edwardo Mondlane University (Mozambique) and Kenya Marine and Fisheries Research Institute (Kenya).

Ms Makaziwe Makamba

Institution: CSIR and University of South Africa

Tel: 063 67 111 50

Email: makamba.makaziwe93@gmail.com

Theme: Parallel Session on Social Science

Title:

Biography:

Being a computer scientist has enabled Ms Makamba to uplift and assist many young women in science by teaching them how to use computer science to change our communities, and also by developing various project that assist communities such as ICT4D. She has promoted the use of computer science by developing Internet of Things projects that focuses on building and uplifting rural communities.

She has also supervised various number of students and assisted them in the journey of research by teaching them how to conduct research thoroughly, how to develop applications that uses technology to eradicate poverty and crime in South Africa.

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	Dr Ntandoyenkosi Malusi Mkhize **Institution:** University of KwaZulu-Natal **Tel:** **Email:** mkhizen7@ukzn.ac.za
Theme: Parallel Session on Energy	
Title:	

	Ms Mapula Salome Makwela **Institution**: University of the Western Cape **Tel**: +27783829365 **Email**: makwelam.salome@gmail.com
Theme: Water Parallel Session	
Title: N/A	

The 3rd Young BRICS Scientist Forum

Prof Martina Crole

Institution: University of Pretoria

Tel: 0833808824

Email: martina.crole@up.ac.za

Theme: Parallel Session on Social Science

Title: N/A

Biography

Prof Crole is a well-recognised educator and researcher in Veterinary Anatomy. She is concerned on the degradation of the ability of young students to critically evaluate their environment and to interact with people beyond their social group and age. In her interactions with other lecturers in South Africa and abroad, she has noticed that her observations are not unique. Many lecturers, across disciplines share their frustration at not being able to reach and teach the new generation of students. Prof Crole has received numerous awards for her teaching and research, both of which rely on ICT's. She wishes to create discussion and awareness on how ICT seems to be affecting young people and how this may impact on new graduates entering the workplace. Prof Crole has peer reviewed 17 publications and has participated in numerous international STI forums.

The 3rd Young BRICS Scientist Forum

Mr Ofentse Marvin Moroeng

Institution: University of Johannesburg

Tel: 011-559-4470/ 0736354176

Email: marvinm@uj.ac.za

Theme: Parallel Session on Energy

Title: *Sustainable coal use in South Africa.*

Biography:

Mr Moroeng is a PhD student at the University of Pretoria (also employed by the University of Johannesburg in the position of Assistant Lecturer). Mr Moroeng has two articles published in international journals accredited by the Department of Higher Education and Training. Moreover, he currently has one article under-review, and two more should be submitted within the next few weeks. His main area of research interest is coal geology, geochemistry, and petrology. Mr Moroeng has peer reviewed 3 publications.

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Ms Mendy Shozi

Institution: Council for Scientific and Industrial Research (CSIR)

Tel: 031 242 2300 / 078 866 4013

Email: mshozi@csir.co.za

Theme: Parallel Session on Water

Title: *Impact of Science, Engineering and Technology (SET) Solutions in Addressing Water Quality: A Case Study Approach*

Biography:

Mendy Shozi is an Environmental Scientist who works mainly with government and governmental agencies to help with packaging science, engineering and technology solutions, in relation to water sustainability related projects. Mendy believes that working closely with under-capacitated government departments not only assists them in gaining the necessary skills and capabilities to better perform their duties, but also, may help in improving service delivery in the country, thus improving the lives of community members. She holds an undergraduate degree in Applied Chemistry, and Honours and Masters degrees in Environmental sciences from the University of KwaZulu-Natal. Her honours thesis, titled: “A study of the chemical and pathogenic status of Umgeni Estuary, Durban”. The research was multi-disciplinary, encompassing chemistry, environmental science and water resource science fields. Her Masters thesis was titled: “Assessing the distribution of sedimentary heavy metals in the Msunduzi River Catchment, KwaZulu-Natal, South Africa”.

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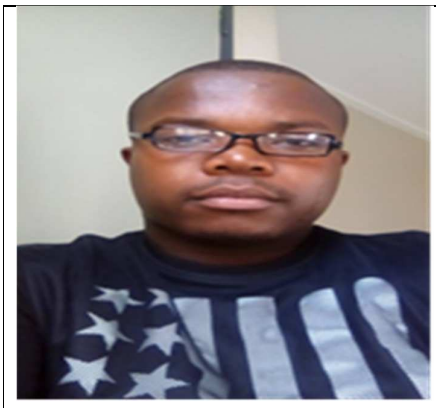

Mr Mhlangabezi Slayi

Institution: University of Fort Hare

Tel: 0835257379

Email: mhlangabezis@gmail.com

Theme: Parallel Session on Water

Title: Breeding indigenous beef cattle genotypes with exotic bovine species as a mitigation strategy to the ever changing climatic conditions and water crisis of South Africa: Turning threats into opportunities for the future in livestock production

Biography:

Mr Mhlangabezi Slayi is a final year PhD student at University of Fort Hare under the supervision of Professor Voster Muchenje. He has been actively involved in research and community engagement projects since his undergraduate studies. Mr Slayi has shown dedication and passion for research. He has been involved in numerous research projects involving communities and has made numerous presentations and some of his work has been published in University of Fort Hare websites, Youtube and accredited scientific journals. When he was doing Masters, due to his commitment, hardwork, excellent writing skills and experience in conducting research, he completed this research within a year and submitted in June 2015. He graduated for his MSc studies on 18 September 2015..

The 3rd Young BRICS Scientist Forum

Mr Metji Reginald Makgoba

Institution: University of Limpopo

Tel: 073 103 1991

Email: makgobamr@gmail.com

Theme: Parallel Session on Social Sciences

Title:

Biography:

Mr Makgoba's current research project investigates the construction and the practices of Corporate Social Responsibility in the mining sector. As a discourse analyst, he sought to understand how the government sets its CSR agendas, as well as how mining corporations are responding to these agendas. This work involves identifying central and hegemonic discourses in the mining sector, highlighting how they empower and disempower key players, such as government, mining companies and local communities. Taking this approach allows him to understand the question of power relating to the issues of transformation and inequality, as well as what needs to be done to address some of them. In short, his work encompasses corporate power, policy, rhetoric and language. Its underlying foundation is concerned with how language in the corporate sector may be treated as trivial while its framing and rhetoric are, in fact, politically consequential. He also takes a deep interest in the social construction of gender and gender equality.

The 3rd Young BRICS Scientist Forum

Mr Mluleki Mnguni

Institution: Umgeni Water

Tel: 033 341 1111 Ext 8035

Email: Mluleki.mnguni@umgeni.co.za

Theme: Parallel Session on Water

Title: N/A

Biography

Mlu holds a Master of Science degree in Chemical Engineering from the University of Cape Town. He has experience in the design of drinking water and wastewater treatment plants, in South and East Africa. Mlu currently works for Umgeni Water as a process engineer, a wastewater specialist and a researcher. His duties involve in wastewater process design, commissioning, plant optimisation, providing process support to the operations division and mentoring technicians and graduate engineers in the field. He is also the current chair for the Water Institute of South Africa's Anaerobic Sludge Processes Division. Mluleki has been working with utmost dedication to uplift research and development in South Africa. He has since revolutionised the way of doing things since his employment at Umgeni Water. He achieved this through focussed water training initiatives, starting a new research and development section and instilling a skills transfer culture within the organisation. It was for these initiatives that he was selected as the Department's best performer just a year after joining the company. Mluleki's thinking focusses on water development across the continent of Africa as opposed to just the company he works for. He currently has a few research students he co-supervises to further training and research and development in the country. His contributions to the field of water management in South Africa has seen him being elected Chairman of the Water Institute of Southern Africa's Anaerobic Sludge Processes Division.

The 3rd Young BRICS Scientist Forum

Ms Mpho Nkosi

Institution: Council for Scientific and Industrial Research (CSIR) and

University of Pretoria

Tel: 0817758180

Email: mphocaselina@gmail.com

Theme: Parallel Session on Social Science

Title: N/A

Biography

Ms Mpho Nkosi received BSc. And MSc. Degrees in Computer Science from University of Limpopo, South Africa in 2008 and 2011 respectively. She started her career in 2012 with Telkom SA where she worked as a technical product developer for Broadband network services. She is currently studying towards PhD in Computer Science at University of Pretoria, South Africa. She is also a researcher with Council for Scientific and Industrial Research (CSIR) under Advanced Networks and systems architecture research group. Her research interests include, but not limited, to Software defined networking, Network Function Virtualization, Network protection and restoration methods. Ms Nkosi has peer reviewed in 8 publications.

Ms Mulalo Thavhana

Institution: Agricultural Research Council

Tel: +27 73 344 1111

Email: thavhanam@arc.agric.za

The 3rd Young BRICS Scientist Forum

Theme: Parallel Session on Water

Title: N/A

Biography

Ms Thavhana's interest and specialisation includesclimate change, water management and resources, agriculture and food security. she gained her experience through completing her degree in Hydrology and Honours in Geohydrology. She further completed her MSc under the discipline of Agrometeorology at the University of KwaZulu Natal where she acquired techniques of agro-hydrological modelling during the course of her MSc study. Her MSc study addressed an important problem using up-to-date analytical tools and from that she was able to publish her work with the physics and chemistry of the earth journal. Ms Thavhana is a member of the Agrometeorology Research Team of Agricultural Research Council and has been participating in many research projects. Particularly she contributed to a project funded by the Water Research Commission of South Africa, as her MSc study was part of the project. She has also contributed significantly in an international project funded by the European Union.

Mr Mihlali Mzileni

Institution: Nelson Mandela University

Tel: 041 504 4952

Email: mihlalimzileni@gmail.com

Theme: Parallel Session on Social Science

Title: N/A

Biography

Mihlali Mzileni is a young emerging academic in the field of social science in Nelson Mandela University. He writes for national newspaper publications such as the Mail & Guardian, News24 and the Herald on various topics surrounding education and democracy. In 2016 he worked for Loughborough University as a research assistant on a study done in South Africa on the minimum standard of living approach. He currently serves as a researcher in the new research chair in Mandela University called the Chair for Critical Studies in Higher Education Transformation. He was instrumental in the delivery of free tertiary education in South Africa as an activist in the #FeesMustFall movement and as one of the members of the national delegation of South African researchers that were part of the free education study tour in one of the BRICS countries in Brazil in March 2017. The government implemented the recommendations of his report. For these efforts, in 2017 he was awarded the Prestigious Vice Chancellor's Excellence in Leadership at Nelson Mandela University.

Dr Natisha Dukhi

Institution: Human Sciences Research Council (HSRC)

Tel: 072 012 3235

Email: NDukhi@hsrc.ac.za

Theme: Parallel Session on Social Science

Title: N/A

Biography:

Natisha is currently the Project Manager for the study entitled A Pilot Study of Improving Outcomes in Teenage Pregnancy using a Combined Tailored M-Health Program and

Motivational Interviewing Intervention, for which she was successfully awarded a research grant from the MRC UK. She supervises research assistants, mentors PhD interns, as well as participates actively in various projects within my department. She has over 12 years of experience in academia, lecturing Anatomy, Physiology, She is actively involved in research relating to Maternal, Adolescent and Child Health in South Africa and globally. She is an Executive Board of Directors for the Public Health Association of South Africa (PHASA), as well as a board member for the World Academy of Science, Engineering and Technology, a member of the Organization for Women in Science for the Developing World, and International Union for Health Promotion and Education (IUHPE). . She is also currently working on nutrition, food systems and health promotion research in schools in African countries such as Kenya and Tanzania through international collaborations with the University of Pavia in Italy, as well as colleagues in Sweden.

Dr Dukhi has peer reviewed 9 publications and is the recipient of *the international trilateral workshop: Towards Universal Health Coverage – promoting and responding to Maternal, Neonatal, Child and Adolescent Health, Funded by the Newton Fund and British Council Researcher Links Programme.* She is also the recipient of the Gro Brundtland Award 2018 for outstanding work in the field of public health and sustainable development

Mr Nhlanhla Gamede

Institution: University of Johannesburg

Tel: 0116752386

Email: Nhlanhla@qfs.co.za

Theme: Parallel Session on Social Science

Title: *Digitized Displacement: Digital connectivity as a critical factor influencing socio-economic mobility of individuals in emerging economies*

Biography

Mr Nhlanhla Gamede has done a MBA on a study of Small companies within South Africa. He is currently involved in a project with Dr Brink on digital transformation of the township Soweto that will form part of his PhD study. He is a young researcher in this field. He is also a co-founder of GigNet Digital (Pty) Ltd that is into digital innovation. The company launched its first mobile app in 2016, which was considered novelty even to date. They are currently busy with their second app soon to hit the market post development. The website where more information on the app can be found is www.gignetdigital.com.

Dr Nishani Harinarain

Institution: University of KwaZulu-Natal

Tel: +27 715400877

Email: harinarain@ukzn.ac.za

Theme: Parallel Session on Water

Title: N/A

Biography

The study Dr Harinarain is working on outlines the viability of using wastewater in construction as a sustainable alternative to using municipality-supplied fresh water (i.e. direct water). It has been estimated that by 2030 there will be an approximate further annual decrease of 17% in water availability, therefore a sustainable alternative must be implemented as soon as is possible to minimise the potential economic, social, and ecological consequences. Although it is currently difficult to quantify the economic effects of the water crisis, if it continues it will adversely affect the country's economy and investment potential. Several property development and construction companies have undertaken a plight to remedy the crisis, by taking responsibility for and reducing the impact

of their water consumption in the midst of the shortage. Nevertheless, more can be done and using reclaimed wastewater is a viable alternative. . Dr Harinarain has peer reviewed more than 25 publications thus far.

Ms Nobubele Phuza

Institution: Nelson Mandela University

Tel: 073 750 9283

Email: nphuza14@gmail.com

Theme: Parallel Session on Social Science

Title: N/A

Biography

Ms Phuza actively participates in the intellectual project of transforming spaces of higher learning through her involvement in the Nelson Mandela University Chair of Critical Studies in Higher Education Transformation. She is also part of the research committee for the establishment of the Centre for Gender and Women Studies. Ms Phuza is involved with various other research organizations that are centred on finding solutions for societies most devastating problems.

The 3rd Young BRICS Scientist Forum

Ms Nolukhanyo Theorida Metula

Institution: University of Fort Hare

Tel: 012 429 6334

Email: nmetula@gmail.com

Theme: Parallel Session on Social Sciences

Title: *The social responsibility of local web news in reclaiming food security and people's identities in the Eastern Cape Province, South Africa*

Biography

Both Ms Metula Masters and PHD research focus is in the fields of community/local media role and responsibility in developmental issues and agenda setting. She presented research papers from her Masters study, in South African Communication Association Conferences in which one was held in University of Free State, Bloemfontein in 2016 and the joint conference of SACOMM and MyWay Africa that was held in Rhodes University, Grahamstown in 2017. Both the papers that she presented demonstrated the role and responsibility local media is promoting social change in the rural areas of South Africa and mostly viewed people as agents of social change. She believes that in order to fight the developmental challenges that BRICS countries are facing we need cooperation and participation from all parts of the society that includes governments, NGOs. Media and the people's participation is of mostly importance. Also, her PhD study that focuses on web news intervention in food security cuts across disciplines of agriculture, media and communication. For my Masters project I received bursary award from National Research Foundation and for her PHD study, she also received bursary awards from NRF, FP&M Seta and the National Institute of Social Sciences.

The 3rd Young BRICS Scientist Forum

Ms Nolwazi Zanele Khumalo

Institution: University of Zululand

Tel: +27 820580074

Email: zanellenkhumalo@gmail.com

Theme: Parallel Session on Social Science

Title: N/A

Biography

Nolwazi Zanele Khumalo is an aspiring researcher. She is currently a student at the University of Zululand registered for Master of Science in Agribusiness Management. She intends to continue her studies and obtain her PhD. She holds a Bachelor of Science Degree in Agribusiness Management from the University of Zululand acquired in May 2017. Her research interests include food security and urban agriculture.

Ms Nontembiso Piyo

Institution: North-west University Potchefstroom

Tel: 0182991652

Email: nontembiso_piyo@yahoo.com

Theme: Parallel Session on Energy

***Title**: The past, present and future prospects of lithium ion batteries cathode materials*

Biography

Ms Nontembiso Piyo is PhD student in chemical engineering at North West University (Potchefstroom Campus). Works with the Bio-energy research group under the supervision of Prof S Marx. She received her Masters of Science degree in chemical engineering in 2014 from North-west University. Her Master's thesis versed on the influence of reaction atmosphere and solvent on biochar yield and characterization. A research paper has been published from the master's project. She has presented her masters project at the Energy Post-graduate Conference in Cape Town in 2013, where she obtained best oral presenter award in Master's student category. Her current work on PhD focuses on fractionation of prehydrolysis liquor from steam treated wood, using membrane filtration for production of valuable chemical products. Other than pursuing her PhD degree, she is currently involved with the Eskom Science Expo where she assists in coaching young scientists from local high schools.

Ms Xaba Nqobile

Institution: Council for Scientific and Industrial Research and University of Western Cape

Tel: 0128412643

Email: NXaba@CSIR.co.za

Theme: Parallel Session on Energy

Title: *The Role of PGMs in Fuel Cell Technologies*

Biography:

Ms Nqobile Xaba holds an MSc degree in chemical engineering science from the University of North West. She is currently studying towards a PhD qualification with the University of Western Cape (UWC) and the Council of Scientific and Industrial Research (CSIR). She obtained a BSc degree in pure and applied chemistry (cum laude) from the University of KwaZulu-Natal (UKZN) in 2010, and honours degree in chemistry in 2011. Her PhD

research focuses on employing the electrochemical atomic layer deposition technique to fabricate crystalline thin films based on Bismuth, Tin and Palladium for application in energy conversion and storage. The thin films produced were also tested for the electrochemical conversion of carbon dioxide (CO2) to useful products. Her previous experience in renewable energy was in biofuels- based on using a biochemical synthesis method to produce ethanol from biomass (amaranth) and the optimisation of reaction conditions using microwave irradiation. She has presented at the 1st Africa Energy Materials Conference on the 28-31 March 2017 at the CSIR-ICC in Pretoria South Africa. Presented at the SA Energy Storage Conference on the 28-30 November 2017 held at Emperors Palace in Ekurhuleni South Africa. Poster presentations done include the 5th CSIR Conference Emerging Researcher's Symposium (8-9 October 2015), and the South African Chemical Institute North Young chemist symposium (23rd November 2016, University of Limpopo). Publications on the work done for her doctoral thesis are in preparation for submission (1 submitted) in peer-reviewed journals. She spent 2 months at the University of Georgia, USA as a visiting student.

She was the recipient of the prestigious women is science, agriculture and engineering scholarship (WOSA) in 2008-2011. She has numerous awards including the dean's recommendation and top performing student throughout her undergraduate degree. She was selected as one of the 20 South African students to attend the glaxosmithkline chemistry training held in the United Kingdom in 2010. She is passionate about community service through education and has worked with numerous organisations focusing on STEM career awareness and motivation

The 3rd Young BRICS Scientist Forum

Mr Oupa Malahlela

Institution: South African National Space Agency

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Email: o.malahlela@gmail.com

Theme: Parallel Session on Water

Title: *Spatio-Temporal Assessment of KZN Dams Using Landsat 8 OLI Dataset in the Wake of Climate Change and Sedimentation Processes*

Biography

Oupa Malahlela was born in Thakgalang, South Africa, in 1986. He received the B.S.c degree in Geography and Environmental Studies from the University of Limpopo, Mankweng, South Africa, in 2009, and the M.Sc Geography at the University of KwaZulu-Natal, Pietermaritzburg, South Africa in 2014.He is currently enrolled for a PhD Geoinformatics at the University of Pretoria, Gauteng South Africa. n 2010, he joined the then Satellite Applications Center (now South African National Space Agency's Space Operations) at the Council for Scientific and industrial Research, as a GIS/Remote Sensing Intern. In July 2011, he moved to the Natural Resources and Environment division at the CSIR on a Master studentship. He then joined the South African National Space Agency (SANSA) Earth Observation Directorate as a remote sensing scientist, in the Research and Applications Development Unit. His current research interests include remote sensing for water inland water mapping, irrigation mapping, water quality assessment, change detection, remote sensing for health application (water-borne diseases) and invasive species mapping. His research is published in a number of peer-reviewed internal and local journals including the International Journal of Applied Earth Observation and Geoinformation, and the South African Journal of Science.

The 3rd Young BRICS Scientist Forum

Ms Oyama Siqwepu

Institution: Stellenbosch University

Tel: +2773 078 6985

Email: 20806280@sun.ac.za

Theme: Parallel Session on Water

Title: N/A

Biography

Currently, I am working in an exciting and emergent field in aquaculture, where my research is contributing to food production in a sustainable and innovative way. Facing the drought in the Western Cape, my work appeals to water saving strategies while producing food.

Publication:

Siqwepu, O, Vine, N. G., Richoux, N.R., 2017. The effect of different dietary microalgae on the fatty acid profile, fecundity and population development of the calanoid copepod *Pseudodiaptomus hessei* (Copepoda: Calanoida). Aquaculture 468, pp 162 -168.

The 3rd Young BRICS Scientist Forum

Mr Paseka Mabina

Institution: Council for Scientific and Industrial Research (CSIR)

Tel: 012 841 2862

Email: pmabina@csir.co.za

Theme: Parallel Session on Energy

Title: *Potential for Demand Response programs under high penetration of Electric Vehicles in South Africa*

Biography

After completing his Master of Engineering Degree in Electrical Engineering at the University of Witwatersrand, Paseka Mabina, got a job offer at the Council for Scientific and Industrial Research (CSIR) as a researcher under Energy Demand Research Group. He has made a significant contributions to Energy Demand at the CSIR within a short period of time. He is the first appointee in Energy Demand Research Group and so far he has done a great work towards business development. His passion for research and innovation landed him a lecturer position at one of the public universities in South Africa. He also co-supervise students with their engineering projects and this has contributed positively towards his development and creative thinking. He is currently working towards registering for a Doctor of Philosophy (PhD) at one of the universities in the country.

The 3rd Young BRICS Scientist Forum

Mr Patrick Martel

Institution: University of KwaZulu-Natal

Tel: 0847243363

Email: pmartel26@gmail.com

Theme: Parallel Session on Water

Title: *Ecological infrastructure: Durban's new 'water moment' in the context of climate change?*

Biography

Patrick Martel is a PhD Candidate at the University of KwaZulu-Natal, South Africa who enjoys working at the interface of the social and natural sciences, and is interested in governance processes. His PhD topic is titled “A temporal analysis of changing hydrosocial relationships in Durban, South Africa.” He is part of a research team that is actively involved in a range of water-related action research projects in eThekwini. In terms of local river rehabilitation projects, Patrick was the lead author of the External Evaluation of the Aller River Pilot Project completed by UKZN for both phases of this collaborative project. In addition, he is part of the Community of Innovation for the Palmiet River Rehabilitation Project. Patrick has attended several local and international workshops, forums and conferences, and has interacted with researchers from various backgrounds. His experiences have enabled him to engage with innovative projects and individuals, ranging from local and international academics, local government officials, communities and civil society.

The 3rd Young BRICS Scientist Forum

Ms Pheladi Venda Tlhatlha

Institution: University of Pretoria

Tel: 0721971981

Email: pheladitlhatlha@gmail.com

Theme: Parallel Session on Energy

Title: N/A

Biography

In her maiden research project, Pheladi investigated the nature, processes, effects and possible solutions to an invasive weed (Campulocilinium macrocephalum) on the environment and livelihood of surrounding communities. Through this study, she demonstrated her ability to handle multidisciplinary issues and to employ diverse methodologies including field measurements and statistical analysis. In the same year, she presented her Honours' research project at the prestigious International Conference of the South Africa Geographers held at University of Stellenbosch, Cape Town. Her current research, towards her MSc qualification, is located at the poverty-energy nexus and investigates strategies for efficient renewable energy use in informal settlements. She explores challenges of energy poverty and unveils energy use patterns in informal settlements with a view to establishing how renewable energy technologies and implementation strategies can be retrofitted into new and/or existing technologies to alleviate poverty and protect the environment of poor communities such as the Diepsloot informal settlement in South Africa. Here again her ability to handle multidisciplinary issues and to employ diverse methodologies including public consultations, face-to-face interviews, field measurements and statistical analysis come to the fore. In 2017, she was

selected as part of a team of top students who represented South Africa at the BRICS Spring School for young emerging researchers at the Ural Federal University in Russia..

Mr Phumlani Msomi

Institution: University of Johannesburg

Tel: 011 559 6313

Email: pmsomi@uj.ac.za

fpmsomi@gmail.com

Theme: Parallel Session on Energy

Title: N/A

Biography

Mr Msomi's PhD research is based on developing new classes of membranes and applying them in alcohol fuel cells. The already developed membranes were tested in single alcohol fuel cells. One of the membranes showed promising results, producing a power density of more than 112 mW.cm-2, which form part of the highest power density found in literature hope to assist in developing new technology which will be affordable to all classes of individuals, such technology won't only elevate BRICS countries but will also elevate the standard of living among the low income households and help with service delivery. If fuel cell technology could be realised, we won't have to rely on the depleting natural resources which continue to pollute our atmosphere. There is an urgent need of a clean, renewable energy source to help both developing and developed countries.

The 3rd Young BRICS Scientist Forum

Dr Phumza Ntshotsho Simelane

Institution: Council for Scientific and Industrial Research (CSIR)

Tel: 083504 8222 or 021 888 2623

Email: pntshotsho@csir.co.za

Theme: Parallel Session on Water

Title: *Water does not come from a tap: restore ecosystems for future water security*

Biography

Dr Simelane is a restoration ecologist, currently working as a senior researcher at the Council for Scientific and Industrial Research (CSIR). Her interests include looking at how to do restoration effectively, through the generation and use of evidence, involving traditionally divergent knowledge bases and ways of doing things. She has learned, with considerable humility, that "science" alone is not enough to answer the world's complex problems. There is much value in incorporating other ways of knowing and doing, and not marginalising some approaches because they are perceived as belonging to the "soft sciences". As such, she is conscious of the need to engage with stakeholders such as policy makers and beneficiaries of environmental management interventions, in an effort to do relevant science and improve the incorporation of scientific findings in environmental management practice. Although she often calls herself a restoration ecologist, she regards herself as a transdisciplinary scholar who is passionate about working in the science-society-policy space. Dr Simelane has peer reviewed 14 publications.

The 3rd Young BRICS Scientist Forum

Dr Pontsho Mbule

Institution: University of South Africa

Tel: 011 670 9319

Email:

mbuleps1@unisa.ac.za/mbuleps@gmail.com

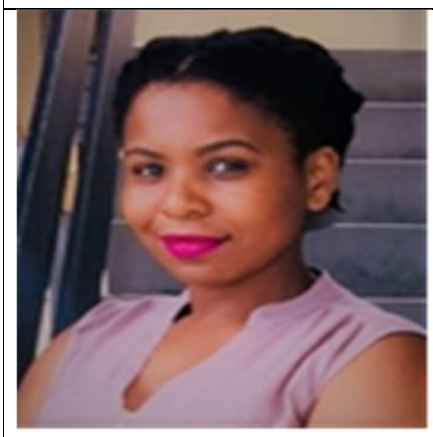
Theme: Parallel Session on Energy

Title: N/A

Biography

Dr Mbule is researcher in the field of nanomaterials and nanotechnology. In this regard, her research is based on the study of the synthesis of different nano-composites and fabrication of organic solar cells, which resonates with modern age research in science and addresses to seek avenues for significant energy efficiencies and renewable energy innovation. Over the years she has managed to publish her research work in prestigious journals of science with high impact factor. She holds a position of Senior Lecturer, where among her key performance indicators are: Research, Teaching and Supervision of postgraduate students. She is currently co-supervising three students (1 MSc and 2 PhD) in her field and continues to work closely with other postgraduate students in the department, assisting and training them on the basic operation of research equipment for the purposes of skill transfer. She is involved in other interdisciplinary projects in collaboration with researchers/scientists at her institution (UNISA) and other institutions like University of the Witwatersrand, University of the Free State and Council for Scientific and Industrial Research (CSIR). Dr Mbule has also successfully managed to establish research collaborations with international institutions like TU Ilmenau in Germany and Korea institute of Science and Technology (KIST). She

further have prospects of establishing collaboration with scientists at the Centre for Nanoscience and Engineering (CeNSE) at the Indian Institute of Science, in India.



Mrs. Pulleng Moleko-Boyce

Institution: Nelson Mandela University

Tel: 0726869756/ 0736073424

Email: Moleko.puleng@gmail.com

Theme: Parallel Session on Water

Title: *The application and extractive chemistry of base metals with imidazole-based extractants from wastewater*

Biography

Pulleng Moleko-Boyce received BSc degree (Chemistry and Mathematical statistics) in 2011 and BSc Honours degree (Chemistry) in 2012 from Rhodes University. A MSc degree (Chemistry) was obtained in 2014 from Nelson Mandela Metropolitan University. Her MSc research titled “The coordination and extractive chemistry of the later divalent 3d transition metal ions with N,N'-donor imidazole-based ligands”. She designed metal ion specific ligand to extract and recover base metals found in contaminated water. She is, currently, a PhD candidate at Nelson Mandela University, working under Prof Zenixole Tshentu. Her research is focused on the design and metal ion selective reagents for recovery of precious metals from spent secondary products.

The 3rd Young BRICS Scientist Forum

Ms Rejoyce Hlengiwe Phetha

Institution: University of KwaZulu-Natal

Tel: 0730982717

Email: rphetha@yahoo.com

Theme: Parallel Session on Social Science

Title: N/A

Biography

Ms Hlengiwe Phetha is a Political Science student with a keen interest on international relations, youth development and ICT. She has researched extensively on peace, peacekeeping and conflict resolution. She has also undertaken research on South Africa's foreign policy, access to education, employment and unemployment. Currently, she is conducting a study on young women in the work place. She holds a BA, BSoc Sci (Hons) and an MSoc Sci in Political Science. Her study acknowledges that counterbalancing of economic events is difficult, collaboration between policymakers and corporations can assist in aligning strategic initiatives that can alleviate global scale youth unemployment.

The 3rd Young BRICS Scientist Forum

Ms Sibongiseni Gaqa

Institution: Nelson Mandela University

Tel: 0728978140

Email: sibongiseni.gaqa@gmail.com

Theme: Parallel Session on Energy

Title: *Beneficiation of waste coal using Scenedesmus microalgae biomass*

Biography

Ms Sibongiseni Gaqa a PhD (chemistry) candidate, working on a project titled "The recovery, beneficiation and agglomeration of discard coal using microalgae biomass", at Nelson Mandela University. In the future, her education background is a follows:

- PhD (Chemistry) (submitting for examination) (Nelson Mandela University). Project title: *The recovery, beneficiation and agglomeration of discard coal using microalgae biomass.* The aim of this research sought to develop a technology that can be used to safely recover coal with the use of microalgae biomass. The developed fuel is expected to be low smoke and low cost.
- Master of Science (Chemistry) (2013) (University of Fort Hare) .Thesis *Title: Chemical and Thermogravimetric analysis of various biomass/coal blends for co-gasification in a downdraft biomass gasifier.* The aim of this research was to establish a possibility of gasifying biomass and coal to reduce the emission impact of coal combustion.
- Bachelor of Science Honors (Chemistry) (2011) (University of Fort Hare). Courses: Analytical, Inorganic, Organic and Physical Chemistry. Project title: *Use of*

The 3rd Young BRICS Scientist Forum

Surfactant Modified Zeolite (Clinoptilolite) as an Adsorbent for Heavy Metals in Water Treatment.

Mr Sikholiwe Ntoyanto

Institution: University of Cape Town

Tel: 021 556 5185

Email: ntoyans@eskom.co.za

Theme: Parallel Session on Energy

Title: *Factors Causing Delay of Modification Projects in a Power Plant*

Biography

Currently employed as an Outage Project Leader in the Outage Management Department at Koeberg Power Station since July 2013. Previously held an instrumentation technician position in the Maintenance Department at Koeberg Power Station for a period of five years. Also got an opportunity to be seconded in the Specification and Procurement Engineering Group within Koeberg Power Station from January 2013 to June 2013 where I conducted and compiled equivalency studies. Possess a good foundation technical foundation knowledge in the engineering and power generation industry, particularly the nuclear industry. Experienced in project coordination and applying project management principles to ensure project success.

The 3rd Young BRICS Scientist Forum

Ms Silindile Senamile Zunngu

Institution: Durban University of Technology

Tel: 073 820 7766

Email: zsena@ymail.com

Theme: Parallel Session on Water

Title: *Synthesis and application of a molecularly imprinted polymer in the solid-phase extraction of selected acidic pharmaceutical from wastewater*

Biography

I am Silindile Senamile Zunngu, I believe that I am a suitable candidate for the young scientist forum because this portfolio will allow me to utilize my education and skills. My strengths include good communication, organisational, analytical, problem solving and leadership skills. I am assertive, proactive and self-driven. During my Bachelor's and Master's Degree projects, I have acquired experience in wastewater analysis using various analytical techniques. I have been involved in troubleshooting, report writing and ordering for our research group.

The 3rd Young BRICS Scientist Forum

Mr Michael Sizwe Mkwanazi

Institution: University of Johannesburg

Tel: +27 710779986

Email: msmkwanazi@uj.ac.za

Theme: Parallel Session on Social Science

Title: *Social Media Information Communication Technology (ICT) Platforms as Sources of Ideas for Youth Entrepreneurs*

Biography

Mr Mkwanazi is currently an MSc Entrepreneurship student at Oxford Brookes University. He has five years of work experience in higher education at the University of Johannesburg. In his tenure at the University of Johannesburg he worked as a Tutor, then a Senior Tutor and a Lecturer for the remaining three years. He taught, conducted research and supervised four BCom Honors students' research. In his lecturing experience he also worked as a Co-Faculty Advisor on entrepreneurship community engagement projects. Mr Mkwanazi has peer reviewed more than 10 publications.

The 3rd Young BRICS Scientist Forum

Mr Sphelele Ngubane

Institution: Durban University of Technology

Tel: 031 373 6614

Email: sphekza@gmail.com

Theme: Parallel Session on Social Science

Title:

Biography

Mr Ngubane a novice research in the fields of media and education. He has yet to publish. For his MA degree he produced a dissertation. He is working on it to get a research paper out of it. The focus of his dissertation was fake news in South Africa and the study found that young people who have access to internet in urban areas are not equipped with skills to detect fake news.

Ms Tamsyn Grewar

Institution: Mintek

Tel: 082 707 1633

Email: tgrewar@gmail.com

Theme: Parallel Session on Water

Title: *The Issue of Mine Impacted Water within BRICS – Problems or opportunity**?***

The 3rd Young BRICS Scientist Forum

Biography

Tamsyn Grewar's research focus over the last few years has primarily been on the development of green technologies relating to the WEF nexus. She has however also invested her time in developing technologies for the beneficiation of various wastes and the production of value added products. She has worked on a variety of topics ranging from the treatment of mine impacted water (MIW); investigating opportunities for the re-use of treated MIW within the Water, Energy, Food (WEF) nexus; as well as the production of anisotropic, Pt and Au nanoparticles; and even the development of carbon sequestration technologies. Tamsyn has published a number of peer-reviewed articles, a book chapter and presented at various conferences on these subjects. The most recent has focused on the reuse of treated, mine-impacted water which is a topic she feels could make a real impact on society and the environment, particularly within developing nations. .

Ms Thabi Myeni

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Theme: Parallel Session on Social Sciences

Title: N/A

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Mr Rufus Thato Seabi

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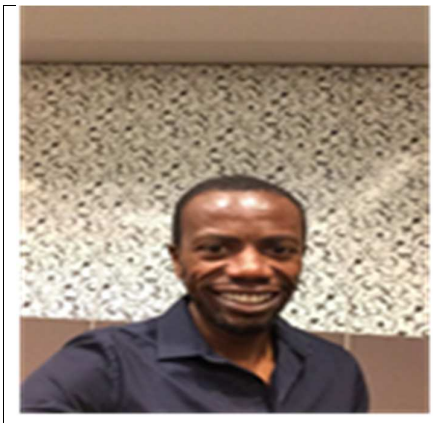
Theme: Parallel Session on Energy

Title: N/A



Dr Tonna Ashim Anyasi

Institution: University of Venda, South Africa

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Theme: Parallel Session on Energy

Title: *The potential of cassava root and banana peel utalization as a source of clean energy in South Africa*

Biography

Dr T.A. Anyasi is based solely on his achievement in the field of Science and Technology where he has made significant progress from being a doctoral candidate to an emerging researcher in the field. Dr Anyasi has published several articles in high impact journals as well as book chapters in his field. In 2015, his doctoral research was selected by the Mail

and Guardian Newspaper, South Africa among selected few entries in the country for article write up and publication in the Science Voices of the Mail & Guardian Newspaper. This was part of his contributions in communicating science even as a doctoral candidate. Dr. Anyasi is a focused, hardworking, energetic and committed emerging researcher. This evidence is seen in his curiosity in research as confirmed by his scientific rating award as a young emerging researcher in the field of Food Science and Technology by the National Research Foundation (NRF) of South Africa. Dr Anyasi obtained the Y2-Rating from NRF; being the only Postdoctoral Research Fellow at the University of Venda with such a prestigious research recognition. As part of recognition obtained by the award, Dr Anyasi was admitted into the Research Advisory Forum (RAF) of the University of Venda, an apex body on research and scholarship at the university. He has published several journal articles and book chapters in international peer accredited journals and was presented with the Univen Research Award for Publication in 2017. Dr Anyasi has presented his research findings at international conferences in different countries and continents, serves as a reviewer for Elsevier, Springer Nature, Wiley Online and American Chemical Society journals and is a member of the Institute of Food Technologists Illinois, USA, as well as a professional member of the South African Association for Food Science and Technology.

Mr Tynan Marais

Institution: University of Cape Town and the Centre for Bioprocess Engineering

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Theme: Parallel Session on Water

Title: *An innovative, low cost solution for treating mine-impacted water with value recover*

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Biography

Mr Tynan Marais is currently a PhD student at the University of Cape Town, he has an active interest in the integration of Biotechnology and Bioprocess Engineering. He is involved in a research project aimed at bettering the understanding of complex mixed microbial communities associated with bioprocess systems for the bioremediation of industrial effluent wastewaters. He has gained insight into metagenomics research through the current project conducted within CeBER. He has a strong background in molecular and cell biology and an active interest in teaching and research within the broad field of Biotechnology and the integration of Applied Microbiology and Molecular Biology within Industrial Bioprocesses.

Mr Victor Fokotsa Molefe

Institution: University of South Africa

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Theme: Parallel Session on Energy

Title: Luminescent materials to enhance the efficiency of Photovoltaic Solar Cells.

Biography

The candidate was groomed under a special Masters programme focusing on nanotechnology by the Department of Science and Technology. The programme involved collaborative training in nanotechnology by the University of the University of the Free State (UFS), University of the Western Cape (UWC), Nelson Mandela Metropolitan University (NMMU) and University of Johannesburg (UJ) were collaborating. This gave him sound understanding of nanoscience and nanotechnology fundamentals and applications. He is now jointly working with the local and international universities to develop materials that are tailored to enhance the efficiency of solar cells and to produce

home lighting bulbs that can be charged with the sunlight. His collaborative ventures include working with the Rhodes university, University of Sonora in Mexico, University of Limoges in France and the Indian Institute of Technology. The projects he is conducting entails synthesis of graphene based nanostructures, their characterization and fabrication of the device. The research is inline with the vision of the condensed matter physics on nanomaterias for energy and lighting technology. I understand that Mr Molefe is a young scientist with unique skills that will benefit the BRICS Forum. His ability to conduct various projects on energy materials is critical and makes me recommend him as a candidate with proven abilities and he's driven to succeed. He has 8 peer-reviewed publications.

Mr Walter Matli

Institution: Vaal University of Technology

Tel: 076 288 3345

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Theme: Parallel Session on Social Sciences

Title: *The provision of Digital Skills towards developing the capacity of youth who are Not in Education, Employment Or Training (Neet) for the future of work.*

Biography

Mr Walter Matli started his career in radio broadcasting before tapping into academia. Mr Matli is currently an academic researcher and lecturer in Information & Communication Technology at Vaal University of Technology. His career in academic environment spans over 9 years. His professional research interests focus on ICT for Development, Technology in Education, Innovation, and Developing the capacity of people who are Not in Education, Employment or Training. He is a graduate of Free State University, University of Johannesburg, Vaal University of Technology and National Institute of Technical Teachers

Training and Research (India). He has presented and published work in both local and international conferences and journals. He has adjudicated a number of ICT initiative projects

Dr Xolile Fuku

Institution: Council for Scientific and Industrial Research (CSIR)

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Email: xfuku@csir.co.za

Theme: Parallel Session on Energy

Title: *Towards alternative Green-fuels and CO2 –mitigation*

Biography

Xolile Fuku is a research chemist with diverse scientific experience. He is a registered member of SACNASP (PrChemSA) and SACI (Cand.Sci.Nat). He obtained his PhD (chemistry/electrochemistry) in 2014 at the University of The Western Cape and He is currently a postdoctoral researcher at the CSIR under the tutelage of Dr Mmalewane Modibedi. His research platform and experience is in electro-analytical chemistry which focuses on fundamental and applied electrodynamics of smart-materials, energy, sensors and green chemistry. Dr Fuku has publish several scientific paper on different applications related to fabrication of energy storage devices, bio/genosensors for detection of toxic trace elements and biomedical applications, green chemistry, photocatalysis, and others. He worked and still is working collaboratively with other scientists at different institutes (CSIR, iThemba labs, and Institute of Technology Tallaght, Ireland) and universities (UNISA, UJ and UWC) on various projects. As a researcher and currently as a postdoctoral fellow, Dr Fuku mentors and co-supervises junior fellows on their experimental work, data analysis, writing of proposals and scientific papers. Further, Xolile is a chemist that is eager to learn

new tasks and heighten oneself for the betterment of an individual and the institute/company he serves. With that in mind, to be a speaker at this world class forum will not only help Him rub-shoulders with the renowned scientists and researchers of this world but will gain a wealth of knowledge that will be transformed and transferred to his colleagues and students.

Ms Xoliswa Dyosiba

Institution: Council for Scientific and Industrial Research (CSIR), and Energy Centre (EC)

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Theme: Parallel Session on Energy

Title: *Exploration of Metal-Organic Frameworks Derived from Waste Polyethylene Terephthalate (PET) for Energy-Related Applications*

Biography

Miss Xoliswa Lindokuhle Dyosiba, a PhD candidate in Chemical Engineering (registered at the Tshwane University of Technology); is currently researching the use of Waste Polyethylene Terephthalate (PET) as sustainable precursors for Metal-organic Frameworks (MOFs) synthesis for hydrogen storage application working under the supervision of Dr. Jianwei Ren (CSIR) and Prof. Maurice Onyango (TUT). Miss Dyosiba has demonstrated a passion for sustainability studies, community development through science and women empowerment, not only through her scientific research but also through the several scientific talks she has been involved in. She joined HySA Infrastructure at the CSIR in June 2016

and has been involved in knowledge generation and input by collaborating with senior researchers in her department on several manuscripts and presenting her research findings at local and international conferences. This research work, has also led to the attainment of several awards, including the best PhD oral presentation award at the inaugural Africa Energy Materials (AEM) 2017 conference, best student poster award at the 2017 HySA technical meeting in Cape Town as well as the doctoral award 2017 at the CSIR materials science and manufacturing excellence awards 2017. Miss Dyosiba is especially interested in participating in this year's gathering because of the platform set to engage with talented BRICS young scientists and researchers from the various BRICS countries while exchanging perspectives on transformative change needed for the betterment of these countries in the energy, water and social science.

Mr Padayachi Yerdashin

Institution: Council for Scientific and Industrial Research

Tel: +27 31 242 2396

Email: ypadayachi@csir.co.za

Theme: Parallel Session on Energy

Title: *Exploring the feedbacks between climate resilient buildings and energy imperatives in South African cities: The need for an integrated assessment framework for city planning*

Biography

Yerdashin attained an MSc in Environmental Science from the University of KwaZulu-Natal in 2016 with a 75% pass mark. The MSc topic was about the remote sensing of air pollution in South Africa. He has presented peer reviewed papers at the Conferences of the National Association for Clean Air and South African Society for Atmospheric Sciences

about air pollution, greenhouse gas emissions and anthropogenic heat emissions in South African cities. He is at the forefront of multidisciplinary urban climate research in South Africa. Recent research initiatives include the testing of the urban climate mapping approach to integrate climate change issues into urban planning and the assessment of the effects of development projects on anthropogenic emissions. Yerdashin's research is contributing substantially to the development of urban integrated assessment modelling capabilities and providing the empirical evidence to support climate compatible development in South African cities. His PhD proposal development will contribute to these research projects. The research outputs from BRICS scientists has contributed substantially to his knowledge development. BRICS cities currently have an unprecedented opportunity to shape their urban futures in a more inclusive, sustainable and resilient manner. As such the urban climate research undertaken by Yerdashin is most relevant to the BRICS context. Yerdashin will benefit by attending the Young Scientist Forum by gaining further insight from experts in climate change and to develop collaborations with other BRICS scientists to further develop his research..

Mr Yusuf Isa

Institution: Durban University of Technology

Tel: +27313732502

Email: yusufi@dut.ac.za

Theme: Parallel Session on Energy

Title: *Potentials of ZSM-5 zeolite in the valorization of wastes to fuels and petrochemicals*

Biography

The Nominee has expertise in the field of catalysis and Energy. He is an academic and active in Research

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Mr Zama Goqo

Institution: University of KwaZulu-Natal

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Theme: Parallel Session on Energy

Title: N/A

Biography

I possess more than two years' experience in the renewable energy field, under a Masters study. I have published two research papers at a top publication institution – IEEE.

Up to now I have collaborated heavily with South Africa based BRICS researchers, and open to future collaborations with engineers and scientists from other BRICS countries.

Publications

Off-load Tap-change Transformer Impact under High Distributed PV Generation - IEEE AFRICON (2017).

An Assessment of Voltage Rise Phenomenon on Existing eThekwini Electricity Low-Voltage Distribution Network - IEEE Power Africa (2017).

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Ms Estella Zandile Jingxi

Institution: Cape Peninsula University of Technology

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Theme: Parallel Session on Water

Title: *Forward Osmosis a Desalination Technology*

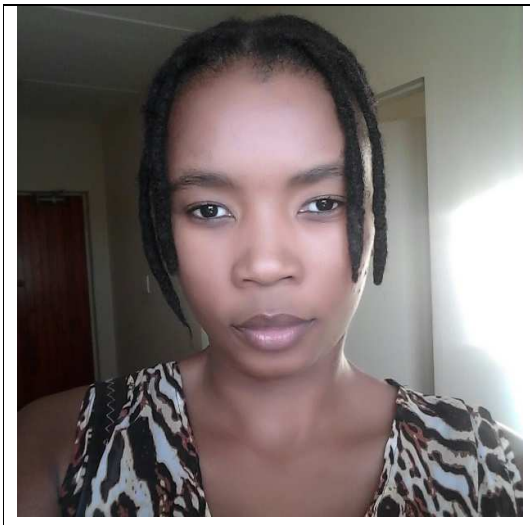
Biography

Estella Zandile Jingxi was born in Flagstaff, Eastern Cape in November 1991 N. She completed her high school at Zingisa Comprehensive High school in Umtata in 2009. In 2010 she registered at Cape Peninsula University of Technology (CPUT) for undergraduate diploma in Chemical engineering and completed it in 2013. During the years of undergraduate Diploma she served in leadership positions in the student Christian Organization. In 2014 she enrolled for Baccalaureus Technologiae (BTech) in chemical engineering at CPUT which was awarded in March 2015. During the year 2014 she also served as chairperson of the student organization on campus called The Governance. In 2015 April she was appointed as an intern at Delloitte subcontracting at CPUT in water research laboratory. It is during this period and working in the environment that in 2015 July she then enrolled for MTech in Chemical engineering part-time, which in 2016 was then converted to full time studies and also to MEng-Chemical engineering. She has also been appointed as a maths tutor in the faculty of applied science for 2016 to 2017 and participates in private tutoring in high schools during holidays. During her course of masters, her work was also presented at the 3rd International Conference on Desalination using Membrane Technology held in Spain 2017. She also had the opportunity to present her work in a local conference WISA 2017, Water Sustainability Symposium conference

that was held on 7- 9 May 2017 in sommerset west, westerncape, she has completed her master's in Chemical Engineering at CPUT and graduated in April 2018. She aspires to complete a doctorate degree in chemical engineering and join the world of researchers around the globe. At the moment she is undergoing training at the Durban University of Technology as the NRF research assistant intern.

Publications

Marshall Sheldon, Estella Zandile Jingxi, Debbie De Jager, Robyn Augustine1, Jasmina Korenak, C Helix-Nielsen and Irena Petrinic (2018) Potential of dyes as draw solutions in forward osmosis for the South African textile industry. ISSN 1816-7950 (Online) Water SA Vol. 44 No. 2 April 2018.



Ms Zanele Ntshidi

Institution: Council for Scientific & Industrial Research (CSIR)

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Theme: Parallel Session on Water

Title: *Quantifying the water use of cover crops commonly grown in South African apple orchards*

Biography

I am a junior researcher at the Council for Scientific and Industrial Research (CSIR). I am also doing my PhD with the University of the Western Cape. I am a young scientist (28 years old) who is enthusiastic about her research and enjoy sharing my work with other scientists. I have presented my work in both local & international conferences, and the most rewarding thing about sharing your work with others is the feedback you get from them, whether your peers or experts in the field. My PhD project entitled "Investigating the partitioning of evapotranspiration in orchards from planting until full-bearing age and implications for water resources management" will uncover new information that is crucial for the agriculture industry. The project seeks to acquire quantitative information on how irrigation is partitioned into beneficial and non-beneficial uses. Upon acquiring this information, guidelines for irrigation are likely to be set. I propose that I be one of the chosen young scientists to present my work because I believe my work is in line with the "water" theme of the conference, and this will be a good opportunity for me to network with my peers and get feedback from other scientists about my own work and in the process grow. This will also be an opportunity for me to learn about other people's work

Publication

1. Dzikiti S., Ntshidi Z., Le Maitre DC., Bugan RDH., Mazvimavi D., Schachtschneider K., Gush MB., Jovanovic NZ., Pienaar H. 2017. Contrasting water use strategies of Prosopis spp invasions and the co-occurring indigenous V. karroo trees: implications for groundwater salvage following alien plant removal in the Northern Cape Province, South Africa. Journal of Forest ecology and management.
2. Z. Ntshidi., S. Dzikiti., M.B. Gush., D.C. Le Maitre. 2018. Characterising the water use and hydraulic properties of riparian tree invasions: A case study of populous x canescens in South Africa. WaterSA journal.
3. Ntshidi, Z., Dzikiti, S., and Mazvimavi, D.: Water use dynamics of young and mature apple trees planted in South African orchards: a case study of the Golden Delicious and Cripps' Pink cultivars, Proc. IAHS, 378, 79-83, https://doi.org/10.5194/piahs-378-79-2018, 2018.

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Dr Mzuyanda Christian

Institution: University of Fort Hare

Tel: +27 73 9294430

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Theme: Parallel Session on Water

Title: N/A

Biography

Christian Mzuyanda would have been the youngest recipient. First of all, he is the youngest PhD holder in the field of Agricultural Economics that the University of Fort Hare has ever produced in its 100 years of existence. He has collaborated as an assistant researcher with Prof Obi on a Water Research Commission Project entitle " Water use productivity associated with appropriate entrepreneurial development paths in the transition from homestead food gardening to smallholder irrigation crop farming in the Eastern Cape". The researcher has Co-authored several research proposal that were funded by government departments and won several Grant Awards

Publications

1. Christian, M and Obi, A (*Under review).* The impact of cooperative membership and its determinants on smallholders farm income: Evidence from rural areas of the Eastern Cape, RSA. *Greener Journal of Social Sciences*

2. Christian, M., Hans, T., and Gidi, L.S (*under review).* Impact of Entrepreneurial Spirit on Performance of Youth and Women Cooperatives. A case of some selected Cooperative Societies in Eastern Cape. *African Journal of Agricultural Research*

3. Christian, M and Obi, A (*under review).* Sustainable crop productivity: Implications of the factors affecting irrigation adoption by smallholder crop farmers in Eastern Cape. *International Journal of Scientific and Technology Research*

4. Christian, M and Obi, A (*under review).* Impact of irrigation adoption on rural farmer's welfare in Eastern Cape Province: A Propensity Score Matching Approach. *Journal of Integrative Agriculture*

5. Christian, M and Agbugba, I (*under review).* Irrigation on food security and dietary diversity to rural households of Chris Hani District in Eastern Cape. *Greener Journal of Agricultural Sciences*

6. Christian, M and Mdoda, L (*under review).* An Economic Analysis of Post-Harvest loses and Marketing of Vegetables in Idutywa, EC. *International Journal of Asian Social Science*

Dr Thokozani Mhlambi

Institution: University of Cape Town

Tel:

Email: thokozani@gmail.com

Theme: Parallel Session on Social Sciences

Title: N/A

Biography

The 3rd Young BRICS Scientist Forum

Dr Khutso Phalane-Legoale

Institution: Academy of Science of South Africa

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Email: khutso@assaf.org.za

Theme: Parallel Session on Social Sciences

Title: N/A

Dr Khutso Phalane-Legoale has been involved in projects which cover abroad spectrum of research problems in the fields of evolution, genetics, reproductive and developmental biology of humans and medicine. She recently completed a doctorate in genetics titled "Determining the link between facial appearance and immunity in an African population" which was rated within the top 5% of theses in its field internationally by one of its internationally appointed reviewers. She is a hardworking young scientist who remains dedicated to making a difference to society through science.

Dr Phalane-Legoale was part of the AE-TBC study at the University of Stellenbosch. The AE-TBC study was an African-European collaboration for discovering new, cost-effective point –of-care diagnostic tests for tuberculosis. She is currently employed as a programme officer (Health and Related Sciences) in the Science Advisory Programme of the Academy of Science of South Africa. The BRICS Young Scientist Forum will provide an excellent platform for her as a young scientist to exchange perspectives and establish research partnerships and networks with other BRICS young scientists. It will provide an excellent opportunity for her to learn about solutions to the most pressing socio-economic problems of the country. The BRICS Young Scientist Forum is also an excellent platform for the exchange of academic, scientific and policy dialogues which would greatly enhance her knowledge.