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6TH CSIR
**EMERGING RESEARCHERS
SYMPOSIUM**



IGNITING
THE NEXT GENERATION FOR
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KEYNOTE SPEAKERS



Professor Klaus Schwab was born in Ravensburg, Germany in 1938. He is Founder and Executive Chairman of the World Economic Forum, the International Organization for Public-Private Cooperation.

He founded the Forum in 1971, the same year in which he published *Moderne Unternehmensführung im Maschinenbau* (Modern Enterprise Management in Mechanical Engineering). In that book, he argued that the management of a modern enterprise must serve not only shareholders but all stakeholders (die Interessenten), to achieve long-term growth and prosperity. Schwab has championed the multistakeholder concept since the Forum's inception, and it has become the world's foremost platform for public and private cooperation. Under his leadership, the Forum has been

a driver for reconciliation efforts in different parts of the world, acting as a catalyst of numerous collaborations and international initiatives.



Professor Sabelo Mhlanga is the Founder and CEO of SabiNano (Pty) Ltd since 1 June 2018. The company was established in 2007 and it specialises in the manufacturing of carbon nanomaterials such as carbon nanotubes, graphene and related products in South Africa. From 1 Jan 2015 to 31 May 2018, he was a Research Professor and Deputy Director at the Nanotechnology and Water Sustainability Research Unit, College of Science, Engineering and Technology at the University of South Africa.

Prof Mhlanga is the National Contact Point for the European Commission Horizon 2020 Nanotechnology Programme in South Africa together with Dr Manfred Scriba from the CSIR, and the immediate past Chairperson of the South African Chemical Institute Central Section. He holds a PhD

from the University of the Witwatersrand, and a Master of Technology from the University of Johannesburg.

Prof Mhlanga has over 75 publications under his name and he has trained and supervised 15 masters graduates and a combined 12 doctoral and post-doctoral fellows in the area of nanomaterials chemistry and water research, who have graduated or completed their research since 2010.

He has presented locally and internationally at numerous conferences and workshops in countries such as the USA, Germany, Spain, Belgium, Brazil, Austria, China, India, Oman, Scotland and France. He is a member of various professional organisations including the South African Chemical Society, and the American Chemical Society.

PLENARY SESSION

VENUE: Diamond auditorium

PROGRAMME DIRECTOR: Weza Matomane

08:00	Conference registration
09:00	CSIR ICC Safety briefing
09:05	Welcome by Dr Thulani Dlamini, CSIR CEO
09:10	Address by Ms Mmamoloko Kubayi-Ngubane, Minister of Science and Technology
09:20	Keynote address , Prof Klaus Schwab, Founder and Executive Chairman: World Economic Forum
09:35	Q&A session
10:00	Tea break and exhibition

SESSION ONE 11:00 – 12:00

THEME: DEFENCE AND SECURITY

VENUE: Diamond auditorium

CHAIR: Bhavya Vallabh

11:00 – 11:20	TALK ONE: Dembe Nenzhelele Narrowband GPS jammer signal cancellation using Software Defined Radio
11:20 – 11:40	TALK TWO: Thabang Matladi Exploiting fully polarimetric data to improve detection performance of a linear detector
11:40 – 12:00	TALK THREE: Muyowa Mutemwa How to hack a political party and win an election

LUNCH 12:00 – 13:00

PARALLEL SESSIONS

SESSION TWO: 13:00 – 14:00

	<p>THEME: ENERGY VENUE: Diamond auditorium CHAIR: Dr Vukosi Marivate</p>	<p>THEME: INDUSTRY SESSION 1 VENUE: Ruby auditorium CHAIR: Dr Monnamme Tlotleng</p>
13:00 – 13:20	<p>TALK ONE: Paul Mabalane (Tshwane University of Technology) A techno economic analysis of anaerobic digestion and gasification hybrid system energy recovery from Municipal Solid Waste in South Africa</p>	<p>TALK ONE: Dr Christopher De Saxe Real-time trailer off-tracking estimation using stereo visual odometry</p>
13:20 – 13:40	<p>TALK TWO: Sandile Nkwanyana (Mintek) Reducing energy consumption in the conventional circuits (SAG/Ball mill circuits)</p>	<p>TALK TWO: Dineo Ramatlo Fusing simulated defect signatures with experimental measurements to predict the probability of defect detection in rails</p>
13:40 – 14:00	<p>TALK THREE: Dr Krishna Govender Charge transport, interfacial interactions and synergistic mechanism in BiNbO₄/MWO₄ (M = Zn or Cd) heterostructures for hydrogen production</p>	<p>TALK THREE: Boitumelo Makume (Sasol) A study of sulfur – based ligands in the control of selective chromium catalysed ethylene oligomerisation</p>

Panel Discussions 14:00 – 15:00

HOW TO PUBLISH A JOURNAL ARTICLE

VENUE: Diamond auditorium

CHAIR: Dr Ndimiso Cingo

PANELISTS: Prof Suprakas Sinha Ray, Dr Vhahangwele Masindi, Dr Carina van Zyl

TAKING YOUR IDEA TO MARKET

VENUE: Ruby auditorium

PRESENTERS: Ellie Hagopian, Thembela Hillie

15:00 – 15:30 Team/Coffee break

15:30 – 16:30 Poster Session

DAY ONE ENDS 16:30

PLENARY SESSION

VENUE: Diamond auditorium

PROGRAMME DIRECTOR: Thulile Khanyile

08:00	Conference registration
08:30	CSIR ICC Safety briefing
08:35	Welcome by Sithembile Bhengu, CSIR Group Executive: Human Capital
08:50 – 09:30	Keynote address , Prof Sabelo Mhlanga, Founder and Director: Sabinano (Pty) Ltd

PARALLEL SESSIONS

SESSION ONE 09:40 – 11:00

	THEME: HEALTH VENUE: Diamond auditorium	THEME: WATER AND ENVIRONMENT VENUE: Ruby auditorium
	CHAIR: Dr Janine Scholefield	CHAIR: Dr Palesa Diale
09:40 – 10:00	TALK ONE: Ireshyn Govender A novel and robust method for urinary proteome profiling applied in an exploratory case-control study	TALK ONE: Dr Marie Smith From satellite products to aquaculture products: realizing the industry value of the science
10:00 – 10:20	TALK TWO: Dr Jerolen Naidoo Bringing precision medicine to cancer treatment in South Africa: A role for HCS	TALK TWO: Dr Vhahangwele Masindi Reclamation of drinking water and valorization of product minerals from the acid mine drainage treatment process: A pilot study
10:20 – 10:40	TALK THREE: Valentine Sassa Detection of breath acetone using gas-chromatography mass spectrometry and tungsten oxide based sensor as a potential replacement for diabetes mellitus	TALK THREE: Monique Smit Microalgae as Industrial Bioremediation Agents for Mine Contaminated Waters
10:40 – 11:00	TALK FOUR: Babalwa Tembeni (University of Pretoria) Characterization of traditionally used medicinal plants in the treatment of HIV	

11:00 - 11:30 **Tea/Coffee break**

PANEL DISCUSSION 11:35-13:00: WOMEN IN STEMI

PANELISTS: Prof Sonali Das, Ms Thulile Khanyile, Ms Tebogoo Rakhudu

FACILITATOR: Dr Mapitso Molefe

VENUE: Diamond auditorium

LUNCH 13:00 – 13:45

SESSION TWO 13:50 – 15:10

	THEME: INDUSTRY 4.0 VENUE: Diamond auditorium CHAIR: Dr Jenny-Lee Panayides	THEME: INDUSTRY SESSION 2 VENUE: Ruby auditorium CHAIR: Masixole Lungongolo
13:50 – 14:10	TALK ONE: Dr Michael Burke What makes an image interesting? Machine learning for turnkey image analysis	TALK ONE: Ghaneshree Moonsamy Local development and manufacture of probiotics for use in animal husbandry
14:10 – 14:30	TALK TWO: Dr Attie Hendriks Additive Manufacturing Online Process Monitoring through the Aid of Image Processing	TALK TWO: Charles Maphanga Targeted femtosecond laser driven drug delivery within HIV-1 infected cells: in-vitro studies
14:30 – 14:50	TALK THREE: Mayur Tikam Posture control for a low-cost commercially-available hexapod robot	TALK THREE: Hester Niemann Broadband Acoustic Underwater Data Communication for Autonomous Underwater Vehicles in Industrial Applications
15:00 – 15:20	TALK FOUR: Antony Mello (SIMINE) Systems Thinking: Simplifying the complexity of industry 4.0	
15:30 – 16:00	PRIZE GIVING AND CLOSING VENUE: Diamond auditorium	
16:00 onwards	NETWORKING SESSION	