PROGRAMME

Thursday 9 December and Friday 10 December 2021

DAY ONE: Thursday 9 December

08:00 – 08:50 Registration online (if you have not already registered)

08:50 The Zoom Webinar will be opened for you to join the meeting

09:00 – 09:15 **Introduction and Official Welcome - Professor Neil Koorbanally,** College Dean of Research

09:15 – 09:45 **Keynote Lecture – Professor Neil Turok**, Higgs Chair of Theoretical Physics, University of Edinburgh, UK; Emeritus Director and Niels Bohr Chair, Perimeter Institute for Theoretical Physics, Canada; Founder and Chair of International Governing Board, African Institute for Mathematical Sciences; Chair, International Advisory Committee, Higgs Centre for Theoretical Physics

"Universe"

09:45 – 9:50 **Programme overview - Professor Neil Koorbanally**

10:00 – 11:20 **Session 1 – ORAL PRESENTATIONS**

The Zoom breakaway meetings for the five presentation sessions will open

Timeslot	SAEES	SCP	SE	SLS	SMSCS
10:00 – 10:20	SAEES-O-1 Marylyn Christian	SCP-O-1 Akshay Durgapersadh	SE-O-1 Sandile Dladla	SLS-O-1 Adeniyi Adebule	SMSCS-O-1 Sarah Blewett
10:20 – 10:40	SAEES-O-2 Duduzile Diza	SCP-O-2 Musa Hussien	SE-O-2 Antoine Badi Mame	SLS-O-2 Jethro Broughton	SMSCS-O-2 Emeka Godwin
10:40 – 11:00	SAEES-O-3 Balungile Dlulisa	SCP-O-3 Kerusha Kalicharan	SE-O-3 Nathan Chilukwa	SLS-O-3 Njabulo Dlamini	SMSCS-O-3 Vernon Kok
11:00 – 11:20	SAEES-O-4 Henna Draycott	SCP-O-4 Samantha Ndlovu	SE-O-4 Matthew de Klerk	SLS-O-4 Shereese Govender	SMSCS-O-4 Mainford Mutandavari

Industry Presentation Programme on pages 13 and 14

11:20 – 11:40 **Tea**

11:40 – 13:00 **Session 2 – ORAL PRESENTATIONS**

Timeslot	SAEES	SCP	SE	SLS	SMSCS
11:40 – 12:00	SAEES-O-5 S'nethemba Dube	SCP-O-5 Lehlohonolo Lekesi	SE-O-5 Tadiwanashe Gutsa	SLS-O-5 Nolutho Makwati	SMSCS-O-5 Gugulethu Nogwebela
12:00 – 12:20	SAEES-O-6 Carla Higgs	SCP-O-6 Charles Maphanga	SE-O-6 Naomi Kingu	SLS-O-6 Ashish Misra	SMSCS-O-6 Grace Ogwo
12:20 – 12:40	SAEES-O-7 John Lobulu	SCP-O-7 Mthokozisi Mnguni	SE-O-7 Sandile Mbonane	SLS-O-7 Kynesha Moopanar	SMSCS-O-7 Mustapha Oloko-Oba
12:40 – 13:00	SAEES-O-8 David Makori	SCP-O-8 Kimara Naicker	SE-O-8 Demian Mukansi	SLS-O-8 Sandile Mthembu	SMSCS-O-8 Abd-Semii Owolabi

13:00 – 14:00 **Lunch**

14:00 – 15:20 **Session 3 – ORAL PRESENTATIONS**

Timeslot	SAEES	SCP	SE	SLS	SMSCS
14:00 – 14:20	SAEES-O-9 Nontokozo Mkhonza	SCP-O-9 Simangaliso Nkosi	SE-O-9 Sithembele Myeza	SLS-O-9 Albert Myburgh	SMSCS-O-9 Creolin Pillay
14:20 – 14:40	SAEES-O-10 Buyisiwe Ngubane	SCP-O-10 Pooja Philip	SE-O-10 Phakamile Ndlovu	SLS-O-10 Robyn Nicolay	SMSCS-O-10 Denisha Pillay
14:40 – 15:00	SAEES-O-11 Tristan Pillay	SCP-O-11 Brandon Willnecker	SE-O-11 Arun Rayavellore Suryakumar	SLS-O-11 Jeaneen Venkatas	SMSCS-O-11 Winnie Shiburi
15:00 – 15:20	SAEES-O-12 Samukelisiwe Vilakazi	SCP-O-12 Bongokuhle Xaba	SE-O-12 Christophe Tambwe	SLS-O-12 Mlondi Shezi	SMSCS-O-12 Olutosin Taiwo

DAY TWO: Friday 10 December

08:50 The Zoom Webinar will be open for you to join.

09:00 – 10:00 **Chris Buckley Memorial Lecture**

Introduction and Official Welcome: **Professor Albert Modi**
Guest Speakers: **Mr Neil Macleod, Professor Cathy Sutherland**

"The Importance of Transdisciplinary Research for Water and Sanitation Transformation"

Professor Chris Buckley (5 July 1949 - 27 May 2021) was a well-known, iconic figure in the international Water and Sanitation field, and touched the lives of many, inspiring everyone with his astonishing general knowledge, and deep understanding of science and engineering.

Chris began his career in the water and sanitation field in the 1970s as a postgraduate student in Chemical Engineering at the then University of Natal. He later joined the Pollution Research Group (PRG) in 1972 and was appointed as the full-time head in 1987.

Under his guidance, the PRG has delivered ground-breaking research in the water and sanitation field, and expanded its research scope beyond chemical engineering, to become a transdisciplinary research hub with local, national and international recognition for its work. His commitment to producing high-quality research outputs, and his ability to adapt to the changing research landscape, has ensured that funding relationships have endured under his leadership. In order to reflect the growing range of research undertaken by the group, the PRG was rebranded and relaunched as the Water, Sanitation & Hygiene Research & Development Centre (WASH R&D Centre) in December 2020.

Chris was always full of bright and innovative ideas at any time of the day and night and constantly developed research questions to address water and sanitation challenges, and then set about establishing a network of researchers (both young and established) who would go on a journey of discovery with him. His firm belief in the spirit of Ubuntu, respect and trust, charismatic personality, radiant smile and mischievous sense of humour will forever be remembered.

Mr Neil Macleod is the former head of water and sanitation at the eThekwini metropolitan municipality. He is currently a member of the Advisory Board of the WASH R&D Centre at UKZN, and a Director and Chair of the Board for Sanergy in Kenya. Mr Macleod is also a sought-after consultant on water and sanitation-related issues nationally and internationally.

Professor Catherine Sutherland is an urban geographer who specialises in environmental, water and climate governance, with a focus on informal settlements and peri-urban areas in Durban. The theory and practice of local environmental change, urban governance, state–citizen relations and social transformation, and how these shape urban sustainability in cities in the South, are of particular interest in her work. She is an academic in the School of Built Environment and Development Studies at the University of KwaZulu-Natal, Durban and teaches modules on sustainability, governance and development.

10:00 The Zoom breakaway meetings for the four presentation sessions will open

Timeslot	SAEES	SCP	SEMSCS*	SLS
10:00 – 13:00	5-minute flash presentations	5-minute flash presentations	5-minute flash presentations	5-minute flash presentations
13:00 – 14:30	Finalise results	Finalise results	Finalise results	Finalise results

* The Flash presentation sessions for the School of Engineering and the School of Mathematics, Statistics and Computer Science have been combined.

15:00 – 16:30 **Closing Session**

Chair: **Professor Neil Koorbanally**, College Dean of Research
Closing remarks: **Professor Albert Modi**, Deputy Vice-Chancellor and Head of College: Agriculture, Engineering and Science

Prizegiving Ceremony - Professor Neil Koorbanally

Lucky Draw

INDUSTRY PRESENTATION PROGRAMME

Thursday 9 December

10:03 – 11:25 Session 1

Timeslot	Organisation	Topic	Presenter, Chatbox Monitor
10:03 – 10:05	UKZN	Introduction	Christine Cuenod
10:05 – 10:15	ZOOM	Zoom representative – Africa	Parmesh Naidoo Jean-Claude Kabeya
10:15 – 10:25	Inqaba Biotec	Inqaba Biotec: Africa's genomic company	Pule Shabalala Katleho Radebe
10:25 – 10:35	Lasec SA	A partner you can trust	Joanne Shackleton Bruce Pillay
10:35 – 10:45	Metrohm	Metrohm corporate video and product talk	Adrian Pillay Lee-Ann Chunilall
10:45 – 10:55	Whitehead Scientific	Empowering you with so much more	Jiya John Mkhululi Moyo
10:55 – 11:05	Anatech Instruments	Anatech instruments provide you with all molecular research requirements	Prisha Govinsamy
11:05 – 11:15	Apex Scientific	Suppliers of Laboratory equipment	Mikayla Raman Premanthra Naicker
11:15 – 11:25	RS-Components	Grass roots education	Vishal Ramphal Wesley Hood

11:25 – 11:40 Break (Promo Video)

11:40 – 12:40 Session 2

Timeslot	Organisation	Topic	Presenter, Chatbox Monitor
11:40 – 11:50	Allan Gray	Information Technology at Allan Gray	Delano Ramdas Monique Williams
11:50 – 12:00	Boxfusion	Boxfusion Graduate Recruitment & Graduate Programme	Mazi Muhlari Sivis Pillay
12:00 – 12:10	Barone Budge & Dominick	What it takes to deliver modern enterprise software	Lucky Nkosi Thabang Ledwaba
12:10 – 12:20	Contour	Exciting opportunities at Contour Technology	Jillian Seaborne Rehen Moodley
12:20 – 12:30	KZN DARD	Opportunities at KZN DARD	Dr Collen Sibiya
12:30 – 12:40	Amesa Maths Body	Opportunities for learner and teacher development in Mathematics	Daniel Krupanandan Rocky Naidoo

12:40 – 12:55 Break (Promo Video and Lucky Draws)

12:55– 14:05 Session 3

Timeslot	Organisation	Topic	Presenter, Chatbox Monitor
12:55 – 13:05	Elsevier	Improving research productivity with Elsevier	Daneshree Moodley John Sterley
13:05 – 13:15	Sasol	Sasol graduate development programme	Pragna Rajaram Dr Pheladi Mohlala
13:15 – 13:25	SACNASP	Why register with SACNASP	Sarah van Aardt Matshidiso Matabane
13:25 – 13:35	SANAS	Accreditation – enhancing the quality of research data	Shadrack Phophi Tshenolo Molamu
13:35 – 13:45	SANRAL	Educational support programme	Rhona Erasmus Gcina Sentletse
13:45 – 13:55	NRF	Postgraduates support programmes	Zodwa Mahlangu Nozine Nqeketho
13:55 – 14:05	Eskom	Ingula Pumped Storage	Nonhlanhla Shezi

Keynote Lecture

"Universe"

by

PROFESSOR NEIL TUROK

Higgs Chair of Theoretical Physics, University of Edinburgh, UK; Emeritus Director and Niels Bohr Chair, Perimeter Institute for Theoretical Physics, Canada; Founder and Chair of International Governing Board, African Institute for Mathematical Sciences; Chair, International Advisory Committee, Higgs Centre for Theoretical Physics

Abstract:

One of the miracles of our existence is that we can understand the universe on scales vastly larger and vastly smaller than those of our everyday experience. The laws of physics have a remarkable economy and universality. They were discovered by asking simple, yet profound questions about nature: today's versions include:

What happened at the big bang? What are dark matter and dark energy? How did time begin? What does the future hold?

Yet those same mathematical laws are astonishingly useful: they underlie every modern technology and opportunity for innovation.

I will end by describing the African Institute for Mathematical Sciences, an institution opening doors for talented African youth to enter advanced science and to become the innovators of the future.

PROFESSOR NEIL TUROK

Biography:

Neil Turok (PhD Imperial College London, 1983) was born to anti-apartheid activist parents who both later served as members of parliament in the New South Africa. Neil now holds the Higgs Chair of Theoretical Physics at the University of Edinburgh, UK. He also holds the Niels Bohr Chair at Perimeter Institute for Theoretical Physics in Canada where he is Director Emeritus. Previously, he was Professor of Physics at Princeton University and Chair of Mathematical Physics at the University of Cambridge. Neil is a global leader in developing and testing theories of the universe. His team's predictions for polarisation-temperature correlations in the cosmic background radiation (CBR) and for galaxy CBR correlations induced by dark energy were confirmed at high precision. He and his collaborators have recently developed a new, foundational approach to quantum path integrals, with wide applications ranging from particle physics and quantum technologies to cosmology and radio astronomy. He and his colleagues have proposed a new picture of the cosmos – the CPT-symmetric universe – which provides an economical, testable explanation for the cosmic dark matter and an explanation for the arrow of time. In 2016, he was awarded an Honorary Fellowship of the UK Institute of Physics and the John Torrence Tate Medal of the American Institute of Physics for International Leadership in Physics.

Neil is the Founder and International Governing Board Chair of the African Institute for Mathematical Sciences (AIMS), a network of centres of excellence for postgraduate maths and science training, research, and public outreach spanning the African continent. Since 2003, AIMS has graduated over 2 300 African students at Masters level, of whom over 600 have proceeded to PhDs, in many areas of science. In 2008, Neil won the TED prize for his work in fundamental cosmology and for his work founding AIMS. With colleagues at AIMS and at Edinburgh, he has pioneered a new approach to user-friendly, accurate and affordable testing for COVID-19 called hypercube pooling, which is now being implemented at scale.

In 2019, Neil was named an Officer of the Order of Canada. He is the author of *The Universe Within*, a popular science bestseller, and co-author of *Endless Universe: Beyond the Big Bang*.