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The Virtual Nanotech Innovation and Investment Forum 2020

"A nanotech Future for a Transformed and Prosperous Africa."

Date: 14-18 December, 2020

Venue: Interprefy - Addis Ababa time

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	Online platform opens on 13 December 2020
	Monday – 14th December 2020
13:00-14:00	**Opening Session** **House keeping** **Welcome Forum** • Dr. Samuel Chigome, President – African Materials Research Society, Botswana. • Jean-Paul Adam, Director – TCND, UN ECA **Africa Nanolandscape and Foresight:** *Prof. Malik Maaza*, UNESCO UNISA ITL/NRF Africa Chair in Nanosciences & Nanotechnology, South Africa **Keynote Address:** • **Vera Songwe- United Nations Under Secretary General and Executive Secretary of UN ECA** **Moderator: Jean-Paul Adam, Director - TCND, UNECA**
14:00-15:00	**High Level Panel on Investing in Emerging Technologies: A small tech for a large continent?** Can Africa afford not to invest in nanotechnology? This session will focus on why and how investment in emerging technologies is key to meeting Africa's development aspirations and the meeting the SDGs. It will look at how countries could build their nanotechnology capabilities, and the benefits and costs of specialized (soft and hard) infrastructure for research, innovation and industry; and how such investments could aid the fight against poverty, disease, hunger, unemployment and economic diversification, among others. Specifically, the session will specify the different components of the nanotechnology value chain, evaluate the infrastructure, including skills, needs of each stage and the opportunities for developing countries at each of the phases of the value chain. • Dr. Mahama Ouedraogo, Director, Human Resources, Science and Technology, African Union Commission • Prof. Nelson Torto, Permanent Secretary in the Ministry of Tertiary Education, Research Science and Technology, Botswana **Moderator: Jean-Paul Adam, Director - TCND, UNECA**

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15:00-16:00	**Special Session: The Nanotechnology Trailblazers in Africa – Education, Research, Innovation and Business**
	Turning potential into actual opportunities is the goal of all innovators and entrepreneurs. This session will feature some of Africa's emerging nanotechnology innovator and entrepreneurs. For many, nanotechnology is largely a promissory note yet to be cashed or realized. This session will feature some of Africa's nanotechnology-based firms, start-ups and enterprises and may look at some of the existing and emerging opportunities, technology and markets, entry barriers, investment and industrial alliances, among others. • Dr. Sabelo Mhlanga, Managing Director- SabiNano (Pty) Ltd, South Africa • Prof. Hulda Swai, Director - Africa Center of Excellence CREATES - The Nelson Mandela African Institution of Science and Technology, Arusha • Prof. Anne Globler, North Western University, South Africa • Prof. Malik Maaza, *Prof. Malik Maaza*, UNESCO UNISA ITL/NRF Africa Chair in Nanosciences & Nanotechnology, South Africa **Moderator: Victor Konde**
16:00-17:30	**Showcasing of nanotechnology research, innovation and industrial infrastructure in Africa**
	This session will showcase some of institutional research and innovation support nanotechnology infrastructure in Africa. This may range from infrastructure in academia, government to that in industry, including their conditions for access and collaboration with other parties in the country, region and the world. Some indications of the capabilities and costs, and alternative ways that Africa can consider to build additional nanotechnology research infrastructure. • Prof. Kamel Besbes, Director General, Center for Research on Microelectronics and Nanotechnology (CRMN) - Novation city- Sousse, Tunisia • Prof. John Baptist Kirabira, Director, African Center of Excellence in Materials, Product Development and Nanotechnology, Makerere University, Uganda • Associate Prof. Archana Bhaw-Luximon, Biomaterials, Drug Delivery and Nanotechnology Unit, Réduit, Mauritius • Dr Mike Masukume, Council for Scientific and Industrial Research, South Africa **Moderator: Victor Konde**
17:30	**Closing remarks**

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	Tuesday – 15 December 2020
14:00-15:30	**Nanotechnology for improved healthcare in Africa** Nanotechnology is finding wide applications in healthcare that include applications to enhance disease diagnostics, drug delivery, and drug and vaccine development, treatments for cancer, health monitoring, etc. Drugs can be designed to target specific organs of the body with enhanced precision and increased absorption, which could be effective at a lower dosage and, thus, reduce side effects or toxicity. This session will address how nanotechnology could be employed and is being used to bring more effective, safer and targeted medications and other healthcare products to the market. Where do the opportunities and what are the key measures and steps that need to be addressed? **Presentations:** • Dr. Obi P. Adigwe, Director General and CEO, National Institute for Pharmaceutical Research and Development (NIPRD), Abuja, Nigeria • Prof. Admire Dube, University of Western Cape, South Africa • Dr. Jeremiah Gathirwa, Kenya Medical Research Institute (KEMRI) Kenya, • Dr. Yolandy Lemmer, Council for Scientific and Industrial Research, South Africa. • Catherine Namuga, College of Engineering, Design, Art and Technology, Makerere University, Uganda **Chair: Professor Hulda Swai**, African Centre of Excellence CREATES, NM-AIST, Arusha
15:30-17:00	**Showcasing Leading Nanotechnology Research and Innovations/Products (Pitching session)** • Dr Archana BHAW-LUXIMON , Mr Kendall TANG BHAW-LUXIMON, TANG, *"Masks incorporating nanofiber layers acting as filtration membranes"*, Mauritius • Martins Emeje, *"Improving the Efficacy of Selected Nigerian Herbal Medicines using Nanotechnology"*, Nigeria • Eluemuno Blyden, *"New egg-based gene technologies for manufacturing next-generation nanotechnology vaccines in eggs"*, USA/Sierra Leone/Nigeria • Tatenda Crispen Madzokere, *"Development of a Nano-engineered Lubricant Grease derived from Lithium and Graphite and the effect of Nanostructured materials as Additives"*, Zimbabwe • Edwin Khundi, "*Nano-based system for system for enhanced identification and safe elimination of cancer cells*", Malawi • Naumih Noah, *"Nano-strips for rapid and sensitive diagnosis of Bilharzia",* Kenya • Dr. Hassan Azzazy, *"NanoEbers Hemostatic Sponges for Stopping Bleeding Instantly",* Egypt **Moderator: Dr. Robert Karanja, Founder and founding CEO of Villgro- Kenya**
1700-17:30	**Closing Session**

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	Wednesday, 16 December 2020
14:00-15:30	**Agricultural and Environmental Nanotechnology Research and Innovations** **High Level Panel Discussion on Agricultural and Environmental Nanotechnology Research and Innovation** Nanotechnology is enabling the design of new agricultural and food products such as nanofertilizers, nanopesticides, nanobiosensors and nano-enabled remediation strategies for contaminated soils[1] and nano-enhanced food storage and packaging. These products would play an increasingly important role in improving agricultural productivity, pests and weeds management, soil quality monitoring and food waste reduction. This session will discuss opportunities for Africa to use nanotechnology to improve productivity, manage soil and environmental degradation; and to improve food quality and safety. • **Prof Swadeshmukul Santra**, Director, Materials Innovation for Sustainable Agriculture, University of Central Florida, USA • **Prof Kofi Adu,** Chair (Department of Physics), Associate Professor of Physics & Graduate Faculty, Materials Science and Engineering, The Pennsylvania State University-Altoona College, USA • **Prof Erastus Gatebe**, Chief Research Scientist/Advisor, Kenya Research and Development Institute, Kenya • **Prof Chen Hongda**, National Program Leader for Bioprocess Engineering and Nanotechnology at National Institute of Food and Agriculture (NIFA), United States Department of Agriculture (USDA), USA • **Prof. Lebo Seru**, Director, School of Physical and Chemical Sciences, Faculty of Natural and Agricultural Sciences, North West University, South Africa **Chair: Dr. Samuel Chigome,** Botswana Institute for Technology Research and Innovation.
15:30-17:30	**Showcasing advanced nanotechnology research and innovations in food and agriculture** • **Dr Jason White,** Director, The Connecticut Agricultural Experiment Station, USA: "**Increased efficacy of Nanofertilizers**" • **Dr Wade Elmer,** The Center for Nanotechnology and Agricultural Pathogens Suppression (CeNAPS), The Connecticut Agricultural Experiment Station, USA: "**Application of Nanoparticles for disease suppression and enhanced yield in vegetables"** • **Prof Antje Baeumner,** Institute for Analytical Chemistry, Bio- and Chemosensors, University of Regensburg, Germany**:** "**Nanotechnologybased biosensors to support sustainable agriculture and food safety"** • **Dr Christian Dimkpa**, The Center for Nanotechnology and Agricultural Pathogens Suppression (CeNAPS), The Connecticut Agricultural Experiment Station, USA: **"Perspectives on scale up and commercialization of nanofertilizers"** **Chair: Dr. Samuel Chigome,** Botswana Institute for Technology Research and Innovation.
17:30-17:45	**Closing Session**

[1] Usman M, Farooq M, Wakeel A, Nawaz A, Cheema SA, Rehman HU, Ashraf I, and Sanaullah M (2020). Nanotechnology in agriculture: Current status, challenges and future opportunities. *Sci Total Environ*. 721:137778.

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Thursday – 17th December 2020	
14:00-15:30	**High Level Panel of industrial applications of nanotechnology- a focus on energy** This session is open to nanotechnology applications in other sectors, with a special focus on energy and construction sectors given Africa's challenges in lighting up the continent and in building sustainable and easy to manage infrastructure. The world has been investing huge amount of money in nanotechnology applications in energy, electronics, and nanomaterials and devices for the construction of stronger, smart and safer transportation systems. It is foreseeable that nanotechnology research and innovations in one industry may have applications or find use in another sector. • Dr. Lonji Kalombo, Council for Scientific and Industrial Research, South Africa • Prof. Agmed S. G. Khalil, Department of Physics, Fayoum University - Egypt; • Prof David Dodoo-Arhin, Department of Materials Science and Engineer, University of Ghana, Ghana; • Dr. Onemus Munyati, Chemistry Department, University of Zambia, Zambia; • Prof Nosipho Moloto, Witwatersrand University, South Africa; **Chair: Prof. Mmantsae Moche Diale**, SARCHI: Clean and Green Energy, Department of Physics, University of Pretoria, South Africa
15:30-17:00	**Showcasing Leading Nanotechnology Research and Innovations/Products (Pitching session)** • Clarence Rubaka, "*Clean Air Technology for Covid-19 Elimination"*, Tanzania • Tatenda Crispen Madzokere, "*Development of Nano-Engineered Reagents for Mineral Froth Flotation*", Zimbabwe • Lassaad EL MIR, "*Development of Low-Power Solid State Gas Sensors for Monitoring of Toxic and Explosive Gas in Environmental Applications"*, Tunisia • Tatenda Crispen Madzokere, "*Development of Nano Clay-Polystyrene Colletor (Ncpc) For Mineral Froth Flotation*", Zimbabwe • Prof. Malik Maaza *"Towards novel Coolants: Nanofluids for more efficient engines. From the lab to the automotive industry"* South Africa • "Ibrahim Ochango, "Capsule Endoscopy" , Kenya **Chair: Dr. Beatrice Murage**; Philips Africa Research & Innovation; Nairobi, Kenya
1700-17:10	**Closing session**

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	Friday – 18th December 2020
14:00-15:30	**High Level Panel on Nanotechnology Strategies for the Future** This Panel will focus on Building Nanotechnology Human and Research Capacity in Africa with a special focus on nanotechnology education. Specifically, the session will explore the opportunity for launching a Pan-African Nanotechnology Masters Programme online. The panel will discuss the content of the curriculum, areas of focus, facilities and personnel, participation of the private sector, collaborations arrangements, and promotion of entrepreneurship and innovation. • Prof. Maaza Malik, UNESCO-Unisa Africa Chair for Nanoscience and Nanotechnology, South Africa • Prof. Ayoub HAJ SAID, Scientific Director, Center for Research in Microelectronics & Nanotechnology, Tunisia (Nanomaterials/electrochemistry) • Prof Yahya Choonara, Principal Researcher and Co-Director WADDP, Wits University, South Africa (Health) • Dr Amal Kasry, Director of the Nanotechnology Research Centre (NTRC) at the British University in Egypt. (Nano-Biosensing) • Prof Mmantsae Diale, University of Pretoria (Energy) **Chair: Prof. Archana Bhaw-Luximon**, Center for Biomedical and Biomaterials Research, University of Mauritius, Réduit, Mauritius
15:30-16:30	**Award giving ceremony and closing session** **Jean-Paul Adam- Director, TCND** **Victor Konde**

Contact:

- Dr. Victor Konde, Officer-in-Charge, Technology and Innovation Section, Email: kondev@un.org

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