

# Pan Africa Chemistry Network Congress 2024

29–31 October 2024 | Nairobi, Kenya



## Tuesday, 29th October 2024

<u>Time</u>	<u>Activity</u>	<u>Location</u>
08:00	Registration	Chandaria Auditorium
09:00	<p><b><u>Opening Ceremony:</u></b></p> <ul style="list-style-type: none"><li>National Anthems</li></ul> <p><b><u>Welcome remarks from:</u></b></p> <ul style="list-style-type: none"><li>David Kariuki – Chair of Dept. of Chemistry, University of Nairobi</li><li>Ale Palermo – Royal Society of Chemistry, Jacob Midwo – PACN Hub Chair</li><li>Leonida Kerubo – Dean, University of Nairobi</li><li>Francis J. Mulaa – Deputy Vice-Chancellor (Research, Innovation &amp; Enterprise), University of Nairobi</li><li>Robert Mokaya OBE FRS FRSC – University of Sheffield, UK and President-Elect of Royal Society of Chemistry</li><li>Margaret Hutchinson – Vice Chancellor, University of Nairobi</li><li>Colin Sykes – Counsellor (Science, Innovation, Tech &amp; Digital) at British High Commission Nairobi</li><li>Andrew M. Karanja – Cabinet Secretary, Ministry of Food &amp; Agriculture</li></ul> <p>[Celebratory Cake-Cutting]</p>	Chandaria Auditorium

10:20	<b>Plenary Lecture: <i>Towards a Net Zero World: Developing and applying new tools to understand how batteries function and to mitigate degradation</i></b> Dame Clare Grey FRS FRSC, University of Cambridge, UK (PL01)  Session Chair: Emmanuel Iwuoha HonFRSC, University of Western Cape, South Africa	Chandaria Auditorium
10:50	BREAK	

### Breakout Sessions

<u>Time</u>	<u>Chandaria Auditorium</u>	<u>Breakout Room 1</u>	<u>Breakout Room 2</u>
	<b>Theme: Energy</b> Session Chair: Erick Masika, Kenyatta University, Kenya	<b>Theme: Environment</b> Session Chair: Anthony Gachanja, Jomo Kenyatta University of Agriculture and Technology, Kenya	<b>Theme: Water</b> Session Chair: Ruth Odhiambo, University of Nairobi, Kenya
11:20	<b><i>Functional semiconductor materials for optimised photovoltaics and electro-energetics</i></b>  Emmanuel I Iwuoha HonFRSC, University of Western Cape, South Africa (I02)	<b><i>Copper-loaded sustainable synthesized MOFs for photocatalysis degradation of textile wastewater</i></b>  Nejat Habib, Adama Science and Technology University, Ethiopia (O06)	<b><i>Assessment of water quality and characterisation of suspended solids in Lilongwe River in Central Malawi</i></b>  Chikumbusho Kayira, Ministry of Water and Sanitation, Malawi (O16)
11:40	<b><i>Evaluation of homogeneous metal complexes as catalysts for the hydrogenation of biodiesel: Improving the oxidative stability of biodiesel</i></b>  Fortunate Sejie, University of Botswana, Botswana (I01)	<b><i>Addressing the global impact of plastics in the environment: The need for a sustainable approach</i></b>  Nathaniel Boadi, Kwame Nkrumah University of Science and Technology, Ghana (I05)	<b><i>Modelling and optimization of As(III) removal from wastewater by activated carbon prepared from maize plant biomass: A multivariate experimental design approach</i></b>  Jonas Bayuo, C. K. Tedam University of Technology and Applied Sciences, Ghana (O17)
11:55	<b><i>The role of sustainable bioenergy in the energy transition</i></b>	<b><i>Isolation and functionalization of carrageenan produces a composite with increased swelling capacity</i></b>	<b><i>Synergetic enhancement of the photocatalytic properties of boron nitride with nitrogen-reduced graphene oxide for PFAS degradation</i></b>

	Francis Kemausuor, Kwame Nkrumah University of Science and Technology, Ghana (I03)	Caroline Munyiri, Ministry of Education, Kenya (O07)	Mary Taiwo Akano, University of Kwazulu-Natal, South Africa (O18)
<u>Time</u>	<u>Activity</u>		<u>Location</u>
12:10	Move to Chandaria auditorium		
12:15	<b>Plenary Lecture: <i>The role of African phytochemistry towards utilization of natural products: recent examples</i></b> Abiy Yenesew, University of Nairobi, Kenya (PL02)  Session Chair: Ruth Omole, Technical University of Kenya, Kenya		Chandaria Auditorium
12:45	LUNCH		Dining Area
13:45	<b>Panel Discussion: Green Chemistry and Sustainability in Africa</b>  <u>Panellists:</u> <ul style="list-style-type: none"> <li>• Youseff Habibi FRSC, University Mohamed VI Polytechnic, Morocco</li> <li>• Vincent Nyamori, University of KwaZulu Natal, South Africa</li> <li>• Sandile Mtetwa, University of Cambridge, UK</li> <li>• Dame Clare Grey FRS FRSC, University of Cambridge, UK</li> </ul> Session Chair: Luigi Vaccaro, Università degli Studi di Perugia, Italy		Chandaria Auditorium
14:45	<b>Plenary Lecture: <i>Water Security in Africa – What we need to know and what we need to do</i></b> Victor Kongo, Global Water Partnership, Tanzania (PL03)  Session Chair: Jane Catherine Ngila, African Foundation for Women & Youth in Education & STI, Kenya		Chandaria Auditorium
15:15	BREAK		

### Breakout Sessions

<u>Time</u>	<u>Chandaria Auditorium</u>	<u>Breakout Room 1</u>	<u>Breakout Room 2</u>
	<i>Theme: Health</i>	<i>Theme: Environment</i>	<i>Theme: Water</i>
	Session Chair: Solomon Derese, University of Nairobi, Kenya	Session Chair: Anthony Gachanja FRSC, Jomo Kenyatta University of Agriculture and Technology, Kenya	Session Chair: Ruth Odhiambo, University of Nairobi, Kenya
15:35	FLASH PRESENTATIONS	FLASH PRESENTATIONS	FLASH PRESENTATIONS
16:10	<p><b><i>Exploring new cinnamoyl chloroquine hybrids on their photo-isomerism and anti-plasmodial activities</i></b></p> <p>Mpelegeng Bvumbi, University of Venda, South Africa (O25)</p>	<p><b><i>Towards a circular economy: Production and degradation of poly(lactides) using transition metal catalysts</i></b></p> <p>Stephen Ojwach, University of KwaZulu-Natal, South Africa (O08)</p>	<p><b><i>Solar disinfection (SODIS) of drinking water: A journey from the laboratory bench into the heart of the community</i></b></p> <p>Kevin McGuigan – Royal College of Surgeons of Ireland, Ireland (I08)</p>
16:30	<p><b><i>Undescribed oxygenated xanthenes from securidaca longipedunculata fresen (polygalaceae) as anti-cancer agents: Isolation, synthesis and biological study</i></b></p> <p>Oladimeji, Abdulkabir, Olusegun Agagu University of Science and Technology, Nigeria (O26)</p>	<p><b><i>Degradation of PCBs in oil transformers by microwaves catalysed by Fe<sup>0</sup>, glycerol, and NaOH</i></b></p> <p>Raissa Kom Regonne, University of Ngaoundere, Cameroon (O09)</p>	<p><b><i>Removal of heavy metals from acid mine drainage by low-cost biochar-ceramic filter composite</i></b></p> <p>Abimbola Oluwalana, Sol Plaatje University, South Africa (O19)</p>
16:45	<p><b><i>From waste to wound care: Biopolymer-based patch for treating cutaneous leishmaniasis</i></b></p> <p>Marie Andrea Laetitia Huët, University of Mauritius, Mauritius (O27)</p>	<p><b><i>Recovery of lead from lead laden cupels generated in precious metal extraction: an enhanced hybrid approach towards long term environmental pollution control</i></b></p> <p>Stephen Nyoni, Chinhoyi University of Technology, Zimbabwe (O10)</p>	<p><b><i>Evaluation of the effectiveness and affordability of the technologies available for water treatment in Nigeria and their impact on public health</i></b></p> <p>Fatai Lawal, National Institute of Radiation Protection and Research, Nigeria (O20)</p>
17:00	Poster Session and Welcome Reception		Exhibition Area

### Wednesday 30th October 2024

<u>Time</u>	<u>Activity</u>	<u>Location</u>
09:00	<b>Plenary Lecture: <i>Porous solids as sustainable energy materials</i></b> Robert Mokaya OBE FRS FRSC, University of Sheffield, UK (PL04)  Session Chair: Vincent Nyamori, University of KwaZulu Natal, South Africa	Chandaria Auditorium
9:30	Move to breakout sessions	

### Breakout Sessions

<u>Time</u>	<u>Chandaria Auditorium</u>	<u>Breakout Room 1</u>	<u>Breakout Room 2</u>
	<i>Theme: Health</i>	<i>Theme: Sustainability and the SDGs</i>	<i>Theme: Food and Agriculture</i>
	Session Chair: Ruth Omole, Technical University of Kenya, Kenya	Session Chair: Jacob Midiwo, Maseno University, Kenya	Session Chair: Gloria Obuzor, University of Port Harcourt, Nigeria
09:35	<b><i>Nano-strips for Rapid and Sensitive Diagnosis of Bilharzia in Kenya</i></b>  Naumih Noah – United States International University, Kenya (I09)	<b><i>Antibiofilm activities of phytochemicals from Zimbabwean medicinal plants</i></b>  Stanley Mukanganyama - African Institute of Biomedical Science and Technology, Zimbabwe (I12)	<b><i>Enhancing food and agriculture for sustainability of life</i></b>  Kaine Okorosaye-Orubite, University of Port Harcourt, Nigeria (I11)
09:55	<b><i>Bioactive metabolites from the Kenyan basidiomycota</i></b>  Josphat Matasyoh – Egerton University, Kenya (I10)	<b><i>Moving towards sustainable analysis: instrumentation, applications and the analyst</i></b>  Giles Edwards, University of Manchester, UK (I13)	<b><i>Toxicological evaluation of the liver and kidneys of rats exposed to Myrothamnus flabellifolius crude aqueous extract</i></b>  Michael Bhebhe, Midlands State University, Zimbabwe (O34)
10:10	<b><i>Synthesis and biological evaluation of a potential antibody-drug conjugate (ADC) for cervical cancer treatment</i></b>  Nosipho Msimango,	<b><i>The role of computational chemistry in the sustainable development goals</i></b>  Lydia Rhyman, University of Mauritius, Mauritius (I14)	<b><i>Effect of variation in pH, temperature and duration of washing on the decontamination of endosulfan and lindane pesticides on vigna unguiculata (L.) walp</i></b>

	University of Cape Town, South Africa (O28)		Irene Oseghale, University of Benin, Nigeria (O35)
10:25	BREAK		

### Breakout Sessions

<u>Time</u>	<u>Chandaria Auditorium</u>	<u>Breakout Room 1</u>	<u>Breakout Room 2</u>
	<i>Theme: Health</i>	<i>Theme: Energy</i>	<i>Theme: Food and Agriculture</i>
	Session Chair: Naumih Noah, United States International University, Kenya	Session Chair: Erick Masika, Kenyatta University, Kenya	Session Chair: Leonard Gitu, Chair of Kenya Chemical Society, Kenya
10:45	FLASH PRESENTATIONS	FLASH PRESENTATIONS	FLASH PRESENTATIONS
11:10	<p><b><i>Improving the versatility of polysucrose hydrogel through the integration of natural molecules/extracts for multi-phased wound healing</i></b></p> <p>Itisha Chummun Phul, Centre for Biomedical and Biomaterials Research, Mauritius, Mauritius (O30)</p>	<p><b><i>Synthesis and characterization of metal chalcogenide nanoparticles using different capping agents for photovoltaic applications</i></b></p> <p>Mohamed Abderrahmane Sanhoury, Faculty of Sciences of Tunis, Tunisia (I04)</p>	<p><b><i>Characterization of antiviral metabolites from the leaves and roothood of millettia oblata ssp. teitensis</i></b></p> <p>Ivan Kiganda, University of Nairobi, Kenya (O36)</p>
11:30	<p><b><i>Synthesis and applications of bioluminescent molecules in the development of diagnostic probes</i></b></p> <p>Marwaan Rylands, University of Cape Town, South Africa (O29)</p>	<p><b><i>Exploring the chemical space in metal-organic frameworks for catalysis</i></b></p> <p>Gift Mehlana, Midlands State University, Zimbabwe (O01)</p>	<p><b><i>Revitalizing deteriorated vegetable oil using urea-enhanced cobalt ferrite magnetic nanoparticles: Synthesis, application and preclinical toxicity evaluation</i></b></p> <p>Adewale Adewuyi, Redeemer's University, Ethiopia (O37)</p>

<u>Time</u>	<u>Activity</u>	<u>Location</u>
11:45	Move to Chandaria auditorium	
11:50	<p><b>Plenary Lecture: <i>Circular Food Systems - selected case studies before food becomes waste</i></b>  Elke Nijman-Ross, African Leadership University, Rwanda (PL05)</p> <p>Session Chair: Gloria Obuzor, Port Harcourt University, Nigeria</p>	Chandaria Auditorium
12:20	<p><b>Panel Discussion:</b> Gender Balance in the Chemical Sciences  <u>Panellists:</u></p> <ul style="list-style-type: none"> <li>• Ruth Odhiambo, University of Nairobi, Kenya</li> <li>• Paul Walton, University of York, UK</li> <li>• Gift Mehlana, Midlands State University, Zimbabwe</li> </ul> <p>Session Chair: Ale Palermo FRSC, Royal Society of Chemistry, UK</p>	Chandaria Auditorium
13:00	LUNCH	Dining Area
14:00	<p><b>Plenary Lecture: <i>Chemistry, the SDGs and the burden of environmental stewardship</i></b>  Rufus Sha'Ato, Joseph Sarwuan Tarka University, Nigeria (PL06)</p> <p>Session Chair: Kaine Orubite-Okorosaye, Port Harcourt University, Nigeria</p>	Chandaria Auditorium
14:30	<p><b>Panel Discussion:</b> UN Intergovernmental Science-Policy Panel on Chemicals, Waste and Pollution Prevention  <u>Panellists:</u></p> <ul style="list-style-type: none"> <li>• Andrea Hinwood, UNEP</li> <li>• Tom Welton, Imperial College London, UK</li> <li>• Frank Adiga, Amentum, UK</li> <li>• Jane Catherine Ngila, African Foundation for Women &amp; Youth in Education &amp; STI, Kenya</li> </ul>	Chandaria Auditorium

	Session Chair: Chair: Jo Reynolds FRSC, Royal Society of Chemistry, UK	
15:30	BREAK	

### Breakout Sessions

<u>Time</u>	<u>Chandaria Auditorium</u>	<u>Breakout Room 1</u>	<u>Breakout Room 2</u>
	<i>Theme: Energy</i>	<i>Theme: Environment</i>	<i>Theme: Water</i>
	Session Chair: Erick Masika, Kenyatta University, Kenya	Session Chair: Leonard Gitu, Chair of Kenya Chemical Society	Session Chair: Jane Catherine Ngila, African Foundation for Women & Youth in Education & STI, Kenya
15:50	<b><i>Green synthesis of Mn-doped CuInSe<sub>2</sub> quantum dots to boost the performance of quantum dot sensitized solar cells</i></b>  Mulu Alemayehu Abate, Aksum University, Ethiopia (O02)	<b><i>Particulate and gaseous air pollution from industrial stationary sources in Kenya</i></b>  Anthony Gachanja FRSC, Jomo Kenyatta University of Agriculture and Technology, Kenya (I06)	<b><i>Concentration of selected nutrients and heavy metals in soils and tea farms and water from Nyamasogota river, Kisii county Kenya</i></b>  Priscilla Omwancha, Jomo Kenyatta University of Agriculture and Technology, Kenya (O21)
16:10	<b><i>A theoretical simulation and optimization of dye-sensitized solar cell with iridium counter electrode: Numerical simulation with SCAPS-1D</i></b>  Bethuel Langa, University of Fort Hare, South Africa (O03)	<b><i>Exploring synthetic porphyrin-protein conjugates as new artificial metalloenzymes</i></b>  Choonzo Chiyumba, University of Cambridge, UK (O11)	<b><i>Plasmon-based colorimetric assay using green synthesized gold nanoparticles for the detection of bisphenol A and antimony in bottled water</i></b>  Deribachew Bekana Hirpa, Haramaya University, Ethiopia (O22)
16:25	<b><i>Concurrent sulfidation and cyanamide functionalization of non-noble metal doped carbon nitrides for flow photocatalysis</i></b>	<b><i>The chemist, his laboratory, and the environment</i></b>  Ahile, Ungwanen John, Benue State University, Nigeria (O12)	<b><i>Chemical assessment in selected underground water wells in south region of Zanzibar Island</i></b>  Abdul Mohamed, The State University of Zanzibar-Suza, Tanzania (O23)



	Papa Kwarteng, University of Cambridge, UK (O04)		
16:40	<b><i>Lithium extraction and beneficiation in Zimbabwe – a state-of-the-art perspective</i></b>  Tavengwa Bunhu, Chinhoyi University of Technology, Zimbabwe (O05)	<b><i>Sustainable recycling and separation of yttrium and zirconium metal values through leaching and extraction insights</i></b>  Botros Tawfik, Egyptian Atomic Energy Authority, Egypt (O13)	<b><i>Activated carbon-silver silica nano composite for removal of heavy metals and organic pollutants from water</i></b>  James Nyirenda, The University of Zambia, Zambia (O24)

16:55 – Close of day

From 18:00	Travel to Gala Dinner – check with registration desk for times		
19:00 – 21:30	GALA DINNER		Bomas Cultural Centre

## Thursday, 31st October 2024

<u>Time</u>	<u>Activity</u>	<u>Location</u>
09:00	<b>Plenary Lecture: <i>Catalyzing the green revolution: circular chemistry for a more sustainable future</i></b> Javier García-Martínez HonFRSC, University of Alicante, Spain (PL07)  Session Chair: Yonas Chebude FRSC, Addis Ababa University, Ethiopia	Chandaria Auditorium
9:30	Move to breakout sessions	

### Breakout Sessions

<u>Time</u>	<u>Chandaria Auditorium</u>	<u>Breakout Room 1</u>	<u>Breakout Room 2</u>
	<b>Theme: Health</b>	<b>Theme: Environment</b>	<b>Theme: Food and Agriculture</b>
	Session Chair: Ruth Omole, Technical University of Kenya, Kenya	Session Chair: Anthony Gachanja FRSC, Jomo Kenyatta University of Agriculture and Technology, Kenya	Session Chair: Kaine Orubite-Okorosaye, Port Harcourt University, Nigeria
09:35	<b><i>Natural neuroprotective agents against the indicators of Parkinson's disease</i></b>  Stephen Nyandpro, University of Dar es Salaam, Tanzania (O31)	<b><i>Nanocellulose: from hype to reality</i></b>  Youseff Habibi FRSC, University Mohammed VI Polytechnic, Morocco (I07)	<b><i>AI-optimized extraction-ultrasound-assisted recovery and depolymerization of lignin from biomass for sustainable production of biochemicals and biopesticides</i></b>  Obinna Ofoegbu, Joseph Sarwuan Tarka University, Nigeria (O38)
09:55		<b><i>Heavy metals pollution among the sprawl villages of Kakamega town, Kenya: An environmental implication for suburbanization among the developing countries</i></b>  Enos Wambu, University of Eldoret, Kenya (O14)	<b><i>Synthesis and characterization of cellulose phosphate-based superabsorbent hydrogels from rice husk under microwave heating for sustainable agriculture</i></b>  Adamu Abdulhameed, Bauchi State University, Nigeria (O39)

10:10	<p><b>Synthesis and bioactivity of isoflavones from <i>Ficus carica</i> and some non-natural analogues</b></p> <p>Vaderament-Alexe Nchiozem-ngnitedem, University of Potsdam, Germany (O33)</p>	<p><b>Deep eutectic solvents based ferrofluid for liquid phase microextraction of ofloxacin and sparfloxacin in water samples</b></p> <p>Abdalla Elbashir, University of Khartoum, Sudan (O15)</p>	<p><b>Effect of the addition of salt <math>\text{NH}_4\text{Cl}</math> on the physicochemical properties of monoammonium phosphate fertilizer (MAP): <math>(\text{NH}_4\text{H}_2\text{PO}_4\text{-NH}_4\text{Cl-H}_2\text{O})</math> at 298.15 K</b></p> <p>Wiam El Fadel, University of Mohammed V, Morocco (O40)</p>
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10:25	BREAK		
10:45	<p><b>Panel Discussion:</b> Advancing Open Knowledge Dissemination in Africa: Towards a fully Open Access Future</p> <p><u>Panellists:</u></p> <ul style="list-style-type: none"> <li>Vincent Nyamori, University of KwaZulu Natal, South Africa</li> <li>Harrison Weda, Head of Programs, Training Centre in Communication (TCC Africa), Kenya</li> <li>Peninah Musangi, Head of Open Access, Kenya Library Information Services Consortium, Kenya</li> <li>Joice Balidawa, Research4Life Country Connector, Kenya</li> </ul> <p>Session Chair: Sara Bosshart, Royal Society of Chemistry, UK</p>	Chandaria Auditorium	
11:45	<p><b>Plenary Lecture: <i>Flexible dynamic frameworks for sensing and storage</i></b></p> <p>Susan Bourne, University of Cape Town, South Africa (PL08)</p> <p>Session Chair: Nathaniel Boadi, Kwame Nkrumah University of Science and Technology, Ghana</p>	Chandaria Auditorium	
12:15	<p><b>Closing Ceremony and Award of Certificates</b></p> <ul style="list-style-type: none"> <li>David Kariuki, Chair of Dept. of Chemistry, University of Nairobi</li> </ul> <p><u>Award of certificates and closing remarks from</u></p> <ul style="list-style-type: none"> <li>Francis J. Mulaa, Deputy Vice-Chancellor (Research, Innovation &amp; Enterprise), University of Nairobi</li> </ul>		

	<ul style="list-style-type: none"> <li>Shem Wandiga, Inaugural PACN Kenya Hub Chair</li> </ul> <p><u>Closing remarks from:</u></p> <ul style="list-style-type: none"> <li>Robert Mokaya OBE FRS FRSC – University of Sheffield, UK and President-Elect of Royal Society of Chemistry</li> <li>Jane Catherine Ngila, African Foundation for Women &amp; Youth in Education &amp; STI, Kenya</li> <li>Leonida Kerubo, Dean, University of Nairobi</li> </ul>	Chandaria Auditorium
13:00	LUNCH	Dining Area
	END OF EVENT	