The Fourth International Adaptive and Sustainable Science, Engineering and Technology (ASSET) Conference

Theme: Developing ASSETs for the Present and the Future Generations

Manchester, UK and Nairobi, Kenya

Tuesday, 08 – Thursday, 10 July 2025

www.assetgrp.org; info@assetgrp.org

Conference Abstract and Technical Programme

ASSET 4.0 Conference

08 – 10 July 2025

Manchester, UK and Nairobi, Kenya

Scope of the Conference includes:

Mobile and Satellite Communications
- ✓ RF / Microwave / Millimetrewave Devices and Systems
- ✓ Satellite Systems, Applications, Missions and Operations
- ✓ Antennas and Propagation Engineering
- ✓ Wireless Sensors and Mobile Communications Networks
- ✓ Metamaterials and Metasurfaces

Internet of Things, Artificial Intelligence and Big Data
- ✓ Smart IoT Sensors Design, Integration and Applications
- ✓ Cyber Security and Information Encryption
- ✓ Robotics and Human-Machine Systems
- ✓ Big Data Analytics
- ✓ AI/Machine Learning Algorithms and Applications

Complex Systems and Hybrid Advanced Manufacturing
- ✓ Adaptive Systems Development and Operation
- ✓ Complex Infrastructure Systems Management
- ✓ Green Systems Engineering Design and Modelling
- ✓ 3D / Nanoscale Printing and Additive Manufacturing

Renewable Energy Generation, Transmission & Utilisation
- ✓ Renewable Energy Harvesting Techniques
- ✓ Energy Grid Management and Sustainability
- ✓ On-demand Renewable Energy Networks
- ✓ Smart Power Line Communications

Future Living and Healthcare

ASSET 4.0 TECHNICAL PROGRAMME

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Sustainability, Environment, Climate Action and Agriculture

- ✓ **Smart Cities and Sustainable Infrastructure Design**
- ✓ **Circular and Net Zero Economy and Environment**
- ✓ **Security, Safety and Surveillance**
- ✓ **Precision Agriculture / Smart Farming and Food Production**
- ✓ **Product Life Cycle Analysis**
- ✓ **Design for Sustainability**
- ✓ **Sustainability Readiness Level and Technology Readiness Level**

- ✓ **Bioengineering and Biomedical Technology Applications**
- ✓ **Biosensors for Healthcare Applications**
- ✓ **Sustainable Digital Transformation in Healthcare**
- ✓ **Smart Healthcare and Sustainable Living and Working**

General and Multidisciplinary Topics

- ✓ **Entrepreneurship, Innovation, Commercialization**
- ✓ **Governance, Policy, Management, Finance, Education**
- ✓ **Sustainable Development Goals**

Organising Committee

Steering Committee

Peter Aaen, *Colorado School of Mines, Illinois, USA;* ***Quan Liu,*** *Wuhan University of Technology, China;* ***Zhipeng Wu,*** *The Univ. of Manchester, UK;* **MfonObong Charles Uko**, *MMU., UK;* **Sunday Enahoro**, *MMU., UK;* ***Olawole*** **Kuti**, *MMU., UK;* **Daniel Nwandu,** *DCLM, Inc., UK;* **Joseph Essien,** *Lagos, Nigeria;* **Perpetual Eze-Idehen,** *The Univ. of Manchester, UK;* **Alan Lawrenson,** *Sony Europe, UK;* **Arslan Altaf**, *MMU, UK;* ***Isaac Oluwatayo***, *Uni. of Venda, South Africa*

Organising Committee

General Chairs	Technical Programme Chairs	Short Courses Chairs	Exhibit Chairs	Local Organising Committee Chairs	Best Paper Award Chairs
Sunday Cookey Ekpo *Manchester Met University, UK*	**Yasir Al-Yasir,** *Queens Mary Uni., London, UK*	**Umar Raza** *Manchester Met University, UK*	**Kolawole Olasunkanmi,** *SmOp CleanTech, UK*	**Peter Kiilu,** *Uni. of Nairobi, Kenya*	**Muhammad Ijaz** *Manchester Met University, UK*
Ochieng Duncan Elly, *Uni. of Nairobi, Kenya*	***Stephen Nyamja,*** *TISG, UK*	***Samik Chakraborty,*** *Uni. of Florence, Italy*	**Michael Ejim,** *TSIG, UK*	**MfonObong Uko,** *TISG, UK*	**Mercy Munjuri,** *Uni. of Nairobi, Kenya*

Publicity Chairs: **Fanuel Elias**, *MMU, UK;* **Rahul Unnikrishnan,** *SmOp CleanTech;* **Aniebiet Kingsley Inyang**, *MMU, UK*

Welcome Message

Welcome to the programme of the Fourth International Conference on Adaptive and Sustainable Science, Engineering and Technology (ASSET 2025).

We are all very glad to be able to meet onsite and online for this conference. This conference will enhance our collective global visibility for capacity-building and partnership.

Background: The ASSET Council facilitates interactions amongst experts and professionals from communities of interest on developing and deploying adaptive and sustainable science, engineering and technology and applications for national security and socio-economic development. The council embraces the disciplines of applied science, engineering and technology, focusing on the total integrated complex systems effectiveness of national and global significance. The applications base is sustained through knowledge transfer partnerships and multidisciplinary research and development collaborations.

Conference Objectives: This conference serves as an interactive forum for the advancement of the practice of adaptive and sustainable systems across the multiple disciplines and specialty areas involved with the science, engineering and technology of integrated entities, complex systems and networks. The conference will provide an avenue for ASSET practitioners, researchers, managers, developers, analysts, educators and users to exchange innovative ideas, concepts, applications and lessons learned in addressing domain-specific problems, applications-oriented topics, methodologies, standards and multidisciplinary research opportunities and findings relating to ASSET systems.

ASSET 4.0 conference will be held on Tuesday, 08 – Thursday, 10 July 2025 in Manchester, UK and Nairobi, Kenya. **Hosts:** Manchester Met University, UK and University of Nairobi, Kenya.

ASSET 2025 conference programme includes **Introduction** (Prof Hans Degens, Manchester Metropolitan University, UK); Welcome **Address** (Prof Kennedy Ogollah, *University of Nairobi, Kenya*); **Conference Theme Exposition (Prof Isaac Oluwatayo,** *University of Venda, South Africa***)**; **17 Keynote Speakers**; **2 Invited Speakers**; **8 Short Courses**; **2 poster sessions**; **7 parallel and 13 plenary technical sessions**.

The ASSET 2015 (maiden), 2023 and 2024 conferences generated international collaborations that translated into at least 12 active trans-continental collaborations for mutual benefits. The success of the ASSET 4.0 conference is made possible by the collective efforts of many individuals. We appreciate our profound gratitude to the Conference Organising and the Technical Programme Committees. They worked hard and smart in planning the conference logistics and the programme. They ensured that the hybrid (i.e., onsite and the online) format of the ASSET 2025 provided a comfortable experience for all the participants. We extend our acknowledgement to the host institutions, Conference Track Chairs, Local Organising Committee,

Programme Chairs, Publicity Committee and the external reviewers. Our heartfelt thanks go to the support and contributions of all the authors. We are eternally grateful to our Platinum Sponsor, SmOp CleanTech and profoundly thank all our industry and academic partners for their commendable technical sponsorships, assistance and noble support. We hope you have a rewarding, memorable and enriching experience as we bring the global north and the global south together with the ASSETs ecosystem. Finally, we look forward to hosting you again in our future ASSET events.

The ASSET 2025 presentations are essential for nurturing and challenging the broad levels of **Adaptive and Sustainable Science, Engineering and Technology** practitioners, researchers, managers, developers, analysts, educators and users in various disciplines to exchange innovative ideas, concepts, applications, and lessons learned in addressing domain-specific problems, applications-oriented topics, methodologies, standards and multidisciplinary research opportunities and findings relating to ASSET systems at the refereed **International ASSET 2025 Conference**. The ASSET conference will enable open multidisciplinary **Research, Innovation, Development and Education** (RIDE) and provide a **global multidisciplinary multi-stakeholder RIDE mechanism and community of practice** forum and platform for the sustainable realisation of the **United Nations' Sustainable Development Goals** **for all**.

Attendees' Guideline

Time Zone: British Summer Time (BST) (GMT+1)

- The duration of oral presentation slot is 15 minutes (including 2-3 minutes Q&A time).
- We will appreciate your punctual arrival and active engagement in each session.
- Prepare and backup your presentation PPT and/or PDF files.
- The official oral presentation time schedule is for reference only. Where absence or some presentations finish in less than 15 minutes, kindly join your session earlier.
- A participation certificate will be awarded to each presenter.
- A best presentation certificate will be awarded to the best presentation selected from each session.

For Onsite Participants

- Location-specific instructions will be provided.

Attention

Please, take care of your belongings in public area. For your personal and property safety, delegates are suggested to wear representative card during conference and not to lend it to those unconcerned to enter event rooms. Conference does not assume any responsibility for loss of personal belongings of participants.

- Avoid staying too late in the city;
- Avoid being alone in the remote area;
- Be vigilant and careful with the strangers who offer you service, sign of charity and other appealing experiences at scenic spots; and
- You can search online for more Security and Tourist Information tips.

For Online Participants

Online Conference MS Teams Link:

- https://teams.microsoft.com/l/meetup-join/19%3ameeting_NjVmM2JhNWQtZjA1Ni00MWMzLTg5OTEtMWYwMjg1YmNiMTAw%40thread.v2/0?context=%7b%22Tid%22%3a%22283ffb50-a30b-488c-90f4-cdae4f7ae6d1%22%2c%22Oid%22%3a%222d4ed2c9-af9e-40a9-a41b-080219478a98%22%7d
- **Join the meeting now**
- Meeting ID: 342 279 298 325 9
- Passcode: YW7Hh7sr

Conference Schedule

DAY 1: TUESDAY, 08 July 2025		
8:45 – 09:00	Login via MS Teams Link sent and walk-in registration	
INAUGURAL CEREMONY		
Programme Director(s): Dr Qiuyu Wang *and* **Dr Emmanuel James,** *Manchester Met University, UK* and **Dr Duncan Elly,** *University of Nairobi, Kenya* **Mahtma Gandhi Graduate Library Conference Room, University of Nairobi, Kenya; and [MMU Lecture Theatre, Geoffrey Manton Building (GM LT1 & GM LT2) / MS Teams]**		
09:00 - 09:15	**INTRODUCTION**	**Engr Stephen Alabi,** *Founder / CEO, SmOp CleanTech, UK*
09:15 - 09:30	**WELCOME ADDRESS**	**Prof Kennedy Ogollah**, *University of Nairobi, Kenya and* **Prof Hans Degens**, *Manchester Metropolitan University, UK*
09:30 - 09:50	**GUEST SPEAKER**	**"Do Any Oddities Exist in Global Warming?" –** *Prof Sang Choi, NASA Inventor/Scientist, NASA Langley Research Centre, Virginia, USA*
09:50 – 10:20	**KEYNOTE SPEAKER 1**	**"Nanostructured Optical Super-absorbers for Energy Generation, Heat Management in Space and Energy Harvesting" –** *Dr. José V. Anguita, Advanced Technology Institute, Uni. of Surrey, UK*
10:20 - 10:40	**CONFERENCE THEME EXPOSITION**	**Prof Isaac Oluwatayo,** *University of Venda, South Africa*

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10:40 - 11:10	**KEYNOTE SPEAKER 2**	**"Cell-Free Massive MIMO based Beamforming for 5G NR and 6G Terrestrial and Non-Terrestrial Network (TN & NTN) Communication"** – *Prof Samik Chakraborty, University of Florence, Italy & Regent Education and Research Foundation, Kolkata, India*
11:10 - 11:15	**VOTE OF THANKS**	**Dr Umar Raza,** *Short Courses Chair, Manchester Met University, UK*
11:15 - 11:30	**TEA & COFFEE BREAK / TECHNICAL SESSION**	
11:30 – 12:00	**Track Chair(s): Dr Umar Raza,** Manchester Met University (MMU), UK & **Prof. Stephen Odock,** *University of Nairobi, Kenya*	
	[MMU Lecture Theatre, Geoffrey Manton Building (GM LT1 & GM LT2) / MS Teams]	
11:30 – 12:00	**KEYNOTE SPEAKER 3**	**"Between Sustainability and Survival: Harnessing Adaptive Science, Engineering, and Technology for Agricultural Transformation in Africa"** – *Prof Isaac Oluwatayo, University of Venda, South Africa*
	Track Chair(s): Dr Umar Raza, *MMU, UK* & **Prof. Stephen Odock, *University of Nairobi, Kenya*** **[MMU Lecture Theatre, Geoffrey Manton Building (GM LT1 & GM LT2) / MS Teams]**	
12:00 – 12:30	**KEYNOTE SPEAKER 4**	**"The Importance of Lifecycle Assessment to Determine the Environmental Impact and the Use of Technologies to Enhance Traceability and Circularity in the Fashion Industry"**– *Dr Prabhuraj Venkatraman, Manchester Met University, UK*
12:30 – 13:00	**Track Chair(s): Dr. Nixon Omoro,** *University of Nairobi, Kenya UK* and **Engr MfonObong Uko,** *TISG, UK*	
12:30 – 13:00	**KEYNOTE SPEAKER 5**	**"6G beyond only Communications: Role of Sensing, ESIT, AI and NTN"** – *Dr Aryan Kaushik, Manchester Metropolitan University, UK*
13:05 – 13:35	**LUNCH BREAK and POSTER SESSION**	

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	AFTERNOON SESSION	
13:40 – 14:40	**Track Chair(s): Dr. Nixon Omoro,** *University of Nairobi, Kenya, UK and* **Engr Rahul Unnikrishnan,** *ManMet / SmOp, UK* **Mahtma Gandhi Graduate Library Conference Room, University of Nairobi, Kenya; and [MMU Lecture Theatre, Geoffrey Manton Building (GM LT1 & GM LT2) / MS Teams]**	
13:40 – 14:10	**ASSET_2025_paper_21: "Holographic Beamforming with Sustainable mmWave Arrays: A New Frontier in Adaptive Connectivity"-** *Enahoro, S., Cookey Ekpo, S., Alabi, S., Al-Yasir, Y., Uko, M., Elias, F., Unnikrishnan, R., Ghosh, S., Olasunkanmi, N.*	**ASSET_2025_paper_04: "Assessing the Implications of Climate Change Policies on Agricultural Growth in Kenya" -** *Mwenjeri, G., Wanjau, R.*
14:10 – 15:00	**Track Chair(s): Dr. Zipporah Onsomu,** *University of Nairobi, Kenya;* **Dr Itoro Esiet,** *University of Uyo, Nigeria; and* **Dr Emmanuel James,** *ManMet Uni, UK* **Mahtma Gandhi Graduate Library Conference Room, University of Nairobi, Kenya; and [MMU Lecture Theatre, Geoffrey Manton Building (GM LT1 & GM LT2) / MS Teams Rooms 1 & 2]**	
14:10 – 14:40	**SCT 1E**	**"Non-Orthogonal Multiple Access for 6G and Beyond Networks: Current Developments" –** *Dr Zeyad Elsaraf, Manchester Metropolitan University, UK*
14:40 – 14:55	**ASSET_2025_paper_30: "A Comprehensive Review of Research Contributions in Smart Grid Communications and Energy Management"-** *Zeinali, M., Ahmadi, L.*	**ASSET_2025_paper_10: "Evaluating Digital Transformation and Maturity in Youth-Led Micro, Small, and Medium Enterprises Across Sub-Saharan Africa"-** *Duncan Elly, Fanny Saruchera, Mc Edward Murimbika, Stephen Odock, Nixon Omoro, Zipporah Onsomu, Obigbemi Imoleay Foyeke and Caston Mputhia*
15:00 -16:00	**Track Chair: Dr. Onesmus Mutunga,** *University of Nairobi, Kenya and* **Engr Fanuel Elias,** *Manchester Met University, UK*	
15:00 – 15:20	**SCT 1F**	**"Reprogramming the Tumour Microenvironment: Toward Sustainable Cancer Therapies in Healthcare through Macrophage Modulation" -** *Dr Qiuyu Wang[1], Arfa Mahmood[1] and Rachel Edmondson[1,2], [1]Manchester Metropolitan University, Manchester UK [2]Wythenshawe Hospital, Manchester UK*
15:20 – 15:50	**KEYNOTE SPEAKER 6**	**"5G and 6G Full Duplex"** *– Prof Jamal Mohamed Ahmouda Zaid, Research and Development*

		Center, HUAWEI Technologies, Canada
15:40 – 16:10	**EVENING SESSION**	
15:40– 16:10	**Track Chair: Engr MfonObong Uko,** *TISG, UK*	**Track Chair: Dr. Nixon Omoro,** *University of Nairobi, Kenya*
	[MMU Lecture Theatre, Geoffrey Manton Building (GM LT1) / MS Teams Rooms 1]	**Mahtma Gandhi Graduate Library Conference Room, University of Nairobi, Kenya / GM LT2 / MS Teams Rooms 2]**
15:40 – 15:55	**ASSET_2025_paper_17: "A Machine Learning Approach to Real-time Detection of Firearms in Varied Conditions: An Experiment on Raspberry Pi and Google Collab"-** *Raza, U., Akhtar, A., Riaz, F., Jamali, S., Latif, F.*	**ASSET_2025_paper_26: "Effect of Climate Smart Agriculture on the Poverty Status of Tomato Farming Households in Ekiti State, Nigeria"-** *Ojo, O., Oluwatayo, I.*
15:55 -16:15	**Track Chair: Dr. Zipporah Onsomu,** *University of Nairobi, Kenya and* **Engr Sunday Enahoro,** *SmOp, UK* **Mahtma Gandhi Graduate Library Conference Room, University of Nairobi, Kenya; and [MMU Lecture Theatre, Geoffrey Manton Building (GM LT1 & GM LT2) / MS Teams Rooms 1 & 2]**	
15:55 – 16:15	**KEYNOTE SPEAKER 7**	**"Carbon Sequestration in Geology Formation: A Significant Potential to Reduce Global Warming" –** *Prof Idara Akpabio, University of Uyo, Nigeria*
16:00 – 18:00	**Short Courses** and **POSTER SESSION**	
16:00 – 18:00	**Short Courses Chair: Dr Umar Raza** and **Dr Emmanuel James,** *ManMet Uni, UK and* **Stephen Nyamja,** *TISG, UK* **Mahtma Gandhi Graduate Library Conference Room, University of Nairobi, Kenya; [MMU Lecture Theatre, Geoffrey Manton Building (GM LT1 & GM LT2) / MS Teams Rooms 1]**	
16:00 – 18:00	**Short Course Talk (SCT) 1:** **Artificial Intelligence, Big Data Analytics, Internet of Things Sensors, Digital Twins and Biomedical Systems**	**16:00 – 16:30** **[1]** SCT-1A: "**A Great Asset to Society: Older People with a Sustained Physical and Cognitive Function**" *– Prof Hans Degens, Manchester Met University, UK* **16:30 – 17:00**

		[2] SCT-1B**: "Autonomous Vehicles Research Studio for Teaching and Research Activities"** – *Dan Vickers (Regional Director of Academic Partnerships) and Dr Daniel Abara (R&D Engineer), Quanser UK Ltd, UK*
		17:00 – 17:30 **[3] SCT-1C: "No Change, No Progress or Decay" –** *Prof Sang Choi, NASA Inventor/Scientist, NASA Langley Research Centre, Virginia, USA*
		17:30 – 18:00 **[4] SCT-1D: "Ultrawideband Antenna Design Considerations for 5G/6G/Wi-Fi 4/5/6/6E/7 Applications" –** *Dr Yasir Al-Yasir, Queens Mary University of London, UK*
DAY 2: WEDNESDAY, 09 July 2025		
8:45 – 09:00	**Login via MS Teams Link sent and walk-in registration**	
09:00 – 10:00	**Programme Director(s): Dr. Ronald Chogii,** *University of Nairobi, Kenya;* ***Engr MfonObong Charles Uko****, TISG, UK;* ***and*** **Dr Noushin Karimian,** *ManMet Uni., UK;*	
09:00 – 09:20	**INTRODUCTION AND WELCOME ADDRESS**	***Prof Hans Degens,*** *Manchester Met University, UK*
09:25 – 09:45	**KEYNOTE SPEAKER 8**	**"Sustainable Manufacturing of Multi-Material Functional Structures using Atmospheric Plasma Processing" –** *Dr Luke Tinsley, Manchester Met University, UK* "
09:50 – 10:05	**ASSET_2025_paper_24: "Multiport Network Modeling of Body-Implantable Antenna at 2.45 GHz" -** *Ghosh, S., Chatterje, S., Cookey Ekpo, S., Enahoro, S., Elias, F., Alabi, S., Gupta, B.*	**ASSET_2025_paper_05: "Advancing Inclusive Academia: Evaluating Institutional Support for Postgraduate Students with Disabilities in Kenya" -** *Githui, F.*
10:10 – 10:40	**KEYNOTE SPEAKER 9**	**"Operational Technology and IoT Integrated Solutions on Unmanned Aerial Vehicles Fleet Management" –** *Balaji Perumal, Founder / CEO, Anya Consulting Services, UK*
10:40 - 10:00	**TEA & COFFEE BREAK & TECHNICAL SESSION**	

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11:00 – 12:00	**Track Chairs: Dr Umar Raza,** *ManMet Uni, UK;* **Engr Rahul Unnikrishnan,** *ManMet / SmOp, UK; and* **Dr. Nixon Omoro,** *University of Nairobi, Kenya*	
	Mahtma Gandhi Graduate Library Conference Room, University of Nairobi, Kenya; and [MMU Lecture Theatre, Geoffrey Manton Building (GM LT1) / MS Teams Rooms 1]	
11:00 – 11:30	**KEYNOTE SPEAKER 10**	**"Unlocking African Youth Potential through International Higher Education Partnerships: Pathways to Empowerment and Sustainable Development"** – *Etom Ofem, Regional Higher Education Insights Lead - Sub-Saharan Africa, British Council, Nigeria*
11:30 – 12:00	**KEYNOTE SPEAKER 11**	**"Transnational Education in a Changing World: Policy, Impact, and Future Directions"** – *Prof João Ponciano, James Watt School of Engineering, University of Glasgow, UK*
12:00 – 13:00	**Track Chair(s): Engr Sunday Enahoro,** *SmOp CleanTech, UK and* **Dr. Nixon Omoro;** *University of Nairobi, Kenya; and* **Dr Emmanuel James,** *ManMet Uni, UK* **[MMU Lecture Theatre, Geoffrey Manton Building (GM LT1 & GM LT2) / MS Teams Rooms 1]**	
12:00 – 12:30	**KEYNOTE SPEAKER 12**	**"Participatory AI: Empowering AI with Human Insight"** – *Prof Keeley Crockett, Manchester Met University, UK*
12:30 – 13:00	**KEYNOTE SPEAKER 13**	**"Internet of Things Technologies for Food Industry" –** *Prof Zhipeng Wu, The University of Manchester, UK*
13:00 – 13:30	**LUNCH BREAK and POSTER SESSION**	
AFTERNOON SESSION		
13:35 – 14:20	**Track Chair(s): Dr. Onesmus Mutunga,** *University of Nairobi, Kenya and* **Dr Kolawole Olasunkanmi,** *SmOp CleanTech, UK* **Mahtma Gandhi Graduate Library Conference Room, University of Nairobi, Kenya; and [MMU Lecture Theatre, Geoffrey Manton Building (GM LT1 & GM LT2) / MS Teams Rooms 1]**	
13:35 – 14:20	**KEYNOTE SPEAKER 14**	**"Creativity in the Design of Adaptive and Sustainable Interactive Systems" –** *Dr Sara Jones, City St George's University, UK*

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14:25 – 15:25	**Track Chairs: Dr Kolawole Olasunkanmi,** *SmOp CleanTech, UK*	**Track Chairs: Dr. Onesmus Mutunga,** *University of Nairobi, Kenya*
	Venue: Geoffrey Manton Building (GM LT1) / MS Teams Room 1	**Venue: Geoffrey Manton Building (GM LT1) / MS Teams Room 2**
14:25 – 14:40	**KEYNOTE SPEAKER 15**	**"Innovation, Growth and Jobs for the 21st Century"** – *Neil Marshall, Development Director, Change School, London, UK*
14:40 – 14:55	**ASSET_2025_paper_31: "Joint Optimization of Pricing and Network Design in a Closed-Loop Supply Chain Under Demand Uncertainty Using a Mixed-Integer Linear Programming Approach" -** *Ahmadi, L., Zeinali, M., Tayebi, H.*	**ASSET_2025_paper_12: "Green and Digital Transformation of SMEs: Cross-Continental Lessons" -** *Duncan Elly, Mustapha Douch, Hylke Vandenbussche, Gianluca Miscione, Fanny Saruchera and Islam Jaber*
14:55 – 15:25	**Track Chair(s): Engr Fanuel Elias** and **Dr. Zipporah Onsomu,** *University of Nairobi, Kenya* **Mahtma Gandhi Graduate Library Conference Room, University of Nairobi, Kenya; and [MMU Lecture Theatre, Geoffrey Manton Building (GM LT1 & GM LT2) / MS Teams Rooms 1 & 2]**	
14:55 – 15:25	**ASSET_2025_paper_33: "Does Masters Athletics Enhance Health- and Life-span?" -** *Matsakas, A., Degens, H.*	**ASSET_2025_paper_37: "Differential Evolution-Based Optimization of RF Power Harvesting System for Wi-Fi and 5G NR Frequency Bands"** – *Samik Chakraborty, Fanuel Elias, Ayona Chakraborty, Amit Ghosh, Nurudeen Kolawole Olasunkanmi and Sunday Ekpo.*
	EVENING SESSION	
15:25 – 16:40	**Track Chairs: Dr. Ronald Chogii,** *University of Nairobi, Kenya* and **Dr Kolawole Olasunkanmi,** *SmOp CleanTech, UK* **Mahtma Gandhi Graduate Library Conference Room, University of Nairobi, Kenya; and Geoffrey Manton Building Lecture Theatre 1 (GM LT1) / MS Teams Room 1**	
15:25 – 16:05	**KEYNOTE SPEAKER 16**	**"Sustainable Additive Manufacturing of Fine-resolution Electronic Components and Interconnects for 3D Heterogenous Integration and Advanced Packaging"** – *Dr Ahmed Busnaina, Chief Technology Officer and Engr Sudhir Jain, Chief Executive Officer, Nano OPS, Inc., Massachusetts, USA*
16:10 – 16:40	**ASSET_2025_paper_14: "Extensive Review of Deep Learning Based Sentiment Analysis in Electronic Media with Insights on Classifications and Datasets" -** *Raza, U.,*	**ASSET_2025_paper_07: "Financial Resilience of Savings Groups in Low- and Middle-Income Countries: A Systematic Review of Measures, Drivers, and Implications" -** *Odongo, J., Kaawaase, T.,*

	Younis, U., Ayaz, S., Riaz, F.		*Orobia, L., Nalukenge, I., Nakyeyune, G., Nkambwe, I.*
	SHORT COURSES and **POSTER SESSION**		
16:00 – 18:00	**Short Courses Chair: Stephen Nyamja** *TISG, UK and* **Dr Umar Raza,** *Manchester Met University, UK* **Mahtma Gandhi Graduate Library Conference Room, University of Nairobi, Kenya; and [MMU Lecture Theatre, Geoffrey Manton Building (GM LT1 & GM LT2) / MS Teams Rooms 1 & 2]**		
16:00 – 17:30	**Short Course 2:** **5G/6G Radio Access Technologies / Satellite-Cellular Convergence / Metamaterials & Metasurfaces / Holographic Beamforming Technologies / Smart Manufacturing / Sustainable Energy Systems**		**16:00 – 16:30** **[1] SCT-2A: "Advanced Solutions for Satellite Communication and 6G NTN IoT Research" –** *Danilo Mariano, Manager - UK North, Yotta Volt UK Ltd* **16:30 – 17:00** **[2] SCT-2B: "Scalable Learning from Remotely Sensed Data" –** *Prof Liangxiu Han*, *Faculty Lead for AI, Digital and Cyber Physical Systems, Manchester Met University, UK*
	ASSET DINNER AND AWARDS CEREMONY		
17:00 – 19:30	**Programme Director(s): Dr Emmanuel James,** *ManMet Uni, UK;* **Michael Ejim,** *TISG, UK* and **Dr. Zipporah Onsomu,** *University of Nairobi, Kenya* **Mahtma Gandhi Graduate Library Conference Room, University of Nairobi, Kenya;** **[MMU Lecture Theatre, Geoffrey Manton Building (GM LT1) and Hyatt Regency Hotel (55 Booth Street West, Manchester, M15 6PQ) / MS Teams Room 1]**		
17:00 – 17:05	**Opening Remarks**	**Geoffrey Manton Building (GM LT1)**	**Prof. Zhipeng Wu,** *The University of Manchester, UK*
17:05 – 17:40	**Dinner Talks**	**Geoffrey Manton Building (GM LT1)**	**[1] "Green Entrepreneurship and Technopreneurship (GET): The Role of ASSETs" –** *Neil Marshall, Director, Change School, London, UK* **[2] "The Role of ASSETs in Sensing modalities: Dynamic Digital Phenotypes" –** *Dr Nicholas Costen, Manchester Metropolitan University, UK* **[2] "Internationalisation of Higher Education through Research Collaboration"** *– Dr Segun Obadire, University of Venda, South Africa*

17:40 – 17:45	**Closing Remarks**	**Geoffrey Manton Building (GM LT1)**	**Dr Noushin Karimian,** *Manchester Metropolitan University, UK*
18:00 – 19:30	**Dinner**	**Hyatt Regency Hotel, 55 Booth Street West, Manchester, M15 6PQ**	
DAY 3: THURSDAY, 10 July 2025			
8:45 – 09:00	**Login via MS Teams Link sent and walk-in registration**		
09:00 – 10:00	**Programme Director(s): Dr. Zipporah Onsomu,** *University of Nairobi, Kenya*; **Dr Emmanuel James,** *ManMet Uni, UK*; **and Engr Rahul Unnikrishnan,** *SmOp CleanTech, UK* **Mahtma Gandhi Graduate Library Conference Room, University of Nairobi, Kenya; and [MMU Lecture Theatre, Geoffrey Manton Building (GM LT1 & GM LT2) / MS Teams Rooms 1 & 2]**		
09:00 – 09:20	**INTRODUCTION AND WELCOME ADDRESS**		**Dr Kolawole Olasunkanmi,** *SmOp CleanTech, UK*
09:25 – 09:40	**SCT-2C**		**"Sustainable Models of Circular Innovations and Entrepreneurialism"** – *Dr Paul Igwe, University of Lincoln, Lincoln, UK*
09:40 – 09:55	**ASSET_2025_paper_15: "The Evaluation and Usage of Honeypots to Fight Against Cybercrimes" -** *NADEEM, H., Touray, B., Raza, U.*		**ASSET_2025_paper_25: "Policy Gaps and Institutional Challenges in Sub Saharan Africa Entrepreneurial and Innovation Ecosystems"-** *Elly, D.*
10:00 - 11:40	**TEA & COFFEE BREAK** **TECHNICAL SESSION**		
10:00 – 11:40	**Track Chair(s): Dr. Ronald Chogii,** *University of Nairobi, Kenya* and **Engr Sunday Enahoro,** *SmOp, UK* **Mahtma Gandhi Graduate Library Conference Room, University of Nairobi, Kenya; and [MMU Lecture Theatre, Geoffrey Manton Building (GM LT1 & GM LT2) / MS Teams Rooms 1 & 2]**		
10:05 – 10:35			**ASSET_2025_paper_08: "The Moderating Effect of Governance on the Relationship Between Public Expenditure and Economic Security Among East African Member states" -** *Kairu, W., Elly Ochieng, D., Ondigo, H.*

10:40 – 11:10	**ASSET_2025_paper_35: "Dielectric Polarizer Inspired Circularly Polarized Bird-Nest Antenna for X band Applications" -** *Chakraborty, S., Elias, F., Mitra, A., Chakraborty, A., Ghosh, A., Ghosh, S., Cookey Ekpo, S., Gupta, B.*	**ASSET_2025_paper_09: "Trade Automation and Performance of Securities Markets in East African Community, Within Member States" -** *kunyoria, C.*
10:00 – 12:25	**Track Chair(s): Dr Emmanuel James** *and* **Engr Fanuel Elias,** *ManMet Uni;,* **and Dr. Ronald Chogii,** *University of Nairobi, Kenya,* **Mahtma Gandhi Graduate Library Conference Room, University of Nairobi, Kenya; and [MMU Lecture Theatre, Geoffrey Manton Building (GM LT1 & GM LT2) / MS Teams Rooms 1 & 2]**	
11:10 – 11:25	**KEYNOTE SPEAKER 17**	**"Evaluating Entrepreneurial and Innovation Ecosystems Transformation at Universities in Kenya" –** *Dr Duncan Elly Ochieng, University of Nairobi, Kenya*
11:25 – 11:40	**ASSET_2025_paper_22: "Internet of Things Public Key infrastructure using Reconfigurable Hardware Root of Trust" -** *Cookey Ekpo, S., Uko, M., Unnikrishnan, R., Elias, F., Olasunkanmi, N., Alabi, S.*	**ASSET_2025_paper_27: "Industrial Chemistry: Evaluation of the Properties of Sponge Gourd and Maize Husk as Potential Bioplastic Raw Materials" -** *Udo, I., Nzan Ogar, R., Udo, I., Effiong Akpakpan, A., Davis Akpabio, U., Cookey Ekpo, S.*
11:40 – 11:55	**SCT-2C: "Computational Diagnostic Tools for Clinical Research" –** *Dr Aron Teklemariam, Manchester Met University, UK*	
11:55 – 12:10	**SCT 2D "The Role of Big Data Analytics, IoTs and Artificial Intelligence in ASSET-based Smart Infrastructure" –** *Engr Paul Sheedy, Unifi.id, UK*	
12:10 – 12:40	**KEYNOTE SPEAKER 18**	**"Antenna Booster Technology Meets Nature: Empowering Forest Resilience through Connectivity"** *– Prof Jaume Anguera, FIEEE, Associate Professor and CTO/Founder, Ignion, Barcelona, Spain*
12:40 – 13:00	**ASSET_2025_paper_23: "Systematic Review of Government-Initiated Water Pollution Reduction Projects in Nigeria (2000–2025)" -** *Emmanuel, G., Cookey Ekpo, S., Enahoro, S.*	**ASSET_2025_paper_11: "Financial Resilience of Small and Medium Enterprises in Uganda" -** *Irene Ayoo, O., Mindra, R., Nassuna, A., Musa and M., Ismael,N..*
13:00 – 13:15	**ASSET_2025_paper_32: "Between Sustainability and Survival: Harnessing Adaptive Science, Engineering, and Technology for Agricultural Transformation in Africa" -** *Oluwatayo, I.*	**ASSET_2025_paper_18: "An Assessment of the Effect of Cost Efficiency on The Financial Performance of Microfinance Banks in Kenya" -** *Mutuku, J., Elly Ochieng, D., Okiro, K.*

ASSET 4.0 TECHNICAL PROGRAMME

The Fourth International Adaptive and Sustainable Science, Engineering and Technology (ASSET) Conference

Theme: Developing ASSETs for the Present and the Future Generations

Manchester, UK and Nairobi, Kenya; Tuesday, 08 – Thursday, 10 July 2025; www.assetgrp.org; info@assetgrp.org

13:15 – 13:30	**ASSET_2025_paper_29: "Influence of Subjective Norms on Voluntary Taxpayers' Compliance among Small Taxpayers in Tanzania: A Case of Singida Tax Region" -** *Chindengwike, J.*	**ASSET_2025_paper_36: "Enterprise Resource Planning Systems and Organizational Sustainability of Major Retail Supermarkets in Nairobi City County, Kenya" -** *RICHU, S., GICHOHI, S..*
13:30 – 13:45	**ASSET_2025_paper_28: "Nanochemistry: Preparation of Lignin Nanoparticles and Application in the Adsorption of Methylene Blue from Aqueous Solution" -** *Udo, I., Williams Ikpong, M., Effiong Akpakpan, A., Cookey Ekpo, S.*	**ASSET_2025_paper_13: "Funding Strategy, Loan Growth, Asset Quality, Firm Size, and Financial Performance of Deposit-Taking Microfinance Institutions in Kenya" -** *Elly, D., Osewe, V.*
13:45-14:15	**NETWORKING AND LUNCH**	
14:15 – 14:25	**ASSET_2025_paper_38: "Modulating Laser Optimisation for a Fibre-Integrated Reception Satellite Transponder System" -** *Sunday C. Ekpo, Fanuel Elias, Mfonobong Uko, Sunday Enahoro, Rahul Unnikrishnan, Soham Ghosh, Swarnadipto Ghosh, Dipankar Saha, Stephen Alabi, Muhammad Ijaz, Itoro Udo, Kolawole Olasunkanmi and Samik Chakraborty*	**ASSET_2025_paper_39: "Position Location and Tracking of 5G/6G/Wi-Fi IoT Devices using a Software-Defined Radio System" -** *Cookey Ekpo, S., Unnikrishnan, R., Uko, M., Elias, F., Enahoro, S., Elias, F., SAHA, D., Ghosh, S., Alabi, S., Raza, U., Chakraborty, S., Olasunkanmi, N., Udo, I.*
14:25 – 14:35	**ASSET_2025_paper_40: "Sustainability and Technology Readiness Levels of ASSET Products and Services" -** *Cookey Ekpo, S., Elias, F., Alabi, S., Enahoro, S., Uko, M., Unnikrishnan, R., Olasunkanmi, N., Udo, I.*	**ASSET_2025_paper_41: "Fibre-Integrated Reception Satellite Signal Parameters Estimation Modelling for Channel-and-Weather-Aware Communication" -** *Cookey Ekpo, S., Uko, M., Unnikrishnan, R., Enahoro, S., Elias, F., SAHA, D., Ghosh, S., Alabi, S., Raza, U., Chakraborty, S., Olasunkanmi, N., Udo, I.*
14:35 – 15:05	**CLOSING SESSION**	
14:35 – 15:00	**Session Chair:** Engr **Rahul Unnikrishnan,** SmOp CleanTech, *UK* and **Dr. Zipporah Onsomu,** *University of Nairobi, Kenya* **[Mahtma Gandhi Graduate Library Conference Room, University of Nairobi, Kenya; and MMU Lecture Theatre, Geoffrey Manton Building (GM LT1 & GM LT2) / MS Teams Rooms 1 & 2]**	
14:35 – 15:00	**Closing Remarks**	**Dr Duncan Elly,** *General Co-Chair, University of Nairobi, Kenya*
	Vote of Thanks	**Dr Kolawole Olasunkanmi –** *Conference Exhibition Chair, SmOp CleanTech, UK*

	Announcements	**Dr Sunday Cookey Ekpo** – *General Chair & Conference Proceedings Editor-in-Chief, Manchester Metropolitan University, UK*
16:00 – 17:00	**NETWROKING and ASSET Conference Organising Committee Meeting** **[Mahtma Gandhi Graduate Library Conference Room, University of Nairobi, Kenya; and MMU Lecture Theatre, Geoffrey Manton Building (GM LT1 & GM LT2) / MS Teams Rooms 1 & 2]**	
ASSET 5.0 !!! **[Tuesday, 07 – Thursday, 09 July 2026; Manchester, UK and Nairobi, Kenya]**		

Speakers' Introduction

Professor Zhipeng Wu, The University of Manchester, Manchester M13 9PL, UK

Zhipeng Wu (BSc, PhD, DEng) is a professor in the Department of Electrical and Electronic Engineering, The University of Manchester, Manchester, UK. His research interests include antennas and propagation, microwave sensors and imaging systems, RF/microwave circuits and measurement, Internet of Things (IoT) technologies, Machine-to-Machine (M2M) communication technologies, RFID based product traceability. He has published over 200 papers in these areas. Also, he has actively involved in a number of international conferences and was a conference chair of the IET-sponsored "International Workshop of IoT and Applications" in 2015. He received IET Innovation "Highly Commended" awards in "Electronics" and "Measurement in Action" in 2010, and in "Emerging Technologies" and "Measurement in Action" categories in 2011. He was awarded a Royal Society Industry Fellowship in 2012-2015 in bringing the microwave and antenna technologies to their uses in UK industries, and he has since been a member of the Royal Society Industry Fellow College.

IoT and Sensing Technologies for Applications in Food Industry

Abstract: Recent developments in Internet of Things (IoT) and sensing technologies have set off a revolution in many industries. These technologies offer the abilities to improve manufacturing or production processes from the provision of informed sensing data and modern data communication techniques. Advanced sensors will enable rapid data gathering of products online. Employment of RFID technologies will enable the tracking and tracing of products throughout the supply, production and delivery process, and identification and registration of product information to individual items. Advanced machine-to-machine (M2M) communication will enable instant process information exchange between machines and equipment on the production line, providing effective control of production processes and maximising outputs. In this talk, food industry will be taken as an example of applications of modern IoT and sensing technologies. Sensors and techniques suitable for food sensing will be reviewed. M2M communication protocols and production line online data handling techniques will be addressed. Implementation of IoT and M2M technologies for food production will be demonstrated.

Prof. Sang H. Choi

Senior Lead Scientist / Innovator, NASA Langley Research Center, Hampton, Virginia 23681

Sang Choi is a Senior Lead Scientist who leads a research team in advanced electronic and energetic materials at NASA Langley Research Center. At NASA, he has developed satellite ERBE sensors, solar-pumped lasers, plasma switches, iodine lasers, microwave reflectometers & rectennas, solar thermal rocket, bionano battery, smart optics, nano-energetic propellants, micro-spectrometer, neural probe, rhombohedral hybrid bandgap engineering, single crystal SiGe growth, and nuclear thermionic avalanche cells. Also Dr. Choi has served for NASA's Quantum Technology Committee, NASA's Risk-Taking Success Strategy Committee, NASA LaRC Ideation-Innovation Blue Sky Team, and NASA LaRC Honor Awards panel. Dr. Choi received 72 various awards from NASA. Dr. Choi also received 3 of Nano50 Awards for his innovative bionano technology in 2006 and 2007, respectively, and a Nano50 Award cited as an "Innovator of the Year" in 2008. He won R&D100 Award in 2009, the 2010 SOLAR Award in 2010, and 1st prize in the 2017 Create the Future Design Contest in Electronics. Dr. Choi published over 220 technical papers and reports. He received 59 U.S. patents and 6 patents pending out of his 169 inventions. He has over 40 invited, featured, plenary, or keynote talks on various technical areas. Dr. Choi has given 74 invited talks on general subject areas and has 43 news media captures. Dr. Choi served as the Editor-in-Chief of Recent Progress in Space Technology from 2009 to 2016. He is an editorial board member for 5 different journals. Dr. Choi has served as the conference chairs and session chairs for numerous professional events.

His honors are:

- a Fellow of National Academy of Inventors (NAI);
- a Fellow of SPIE;
- an Associate Fellow of AIAA;
- an Inductee of NASA Inventors Hall of Fame, 2020;
- NASA Exceptional Service Medal, 2021.

***Talk Title*: Do Any Oddities Exist in Global Warming?**

The world has suffered from a sizzling hot weather that overspreads every corner of this globe. Current studies have pin-pointed the increased emission of carbon dioxide for global warming, since the emission of carbon dioxides has been estimated by measurements. On the other hand, the result of such measured element cannot justify scientifically to determine the overall aspect of global dynamics of warming, since the effect of carbon dioxide has, in general, a limited role for global warming. Great potentials that have agitated the equilibrium state of thermosphere may come from rather elsewhere than the emission of carbon dioxide with a low thermal mass. The author will present and discuss the potential but major thermal loading components that contribute to global warming.

Note: Dr. Choi started his career developing NASA weather satellite (ERBS) sensors and data analysis code in the 1980s. His background with the Earth radiation budget has led him to explore other potential causes for global warming. His talk reflects only his own study and does not represent NASA.

Dr Luke Tinsley, Manchester Metropolitan University, UK

Luke Tinsley graduated from the University of Leeds with a bachelor and PhD in mechanical engineering in 2019 and 2024 respectively. He began as a Lecturer in manufacturing processes and Manchester Metropolitan University in 2025, where his research focuses on addressing some of the largest challenges in society surrounding sustainability, productivity, and healthcare through innovations in manufacturing technologies.

Talk Title: **Sustainable Manufacturing of Multi-Material Functional Structures using Atmospheric Plasma Processing**

Abstract: Many devices rely upon the complex arrangement of functional materials throughout their structure to achieve their purpose. As we seek the next generation of devices, designers demand manufacturing processes with advanced capabilities while being economical and aligning with global sustainability initiatives. Here, bottom-up fabrication approaches have emerged as attractive options due to their flexibility and near zero-waste. However, their shortcomings concerning process resolution, compatible materials, accessibility, and scalability prevent wide-scale adoption. This talk will cover recent progress on an emerging bottom-up fabrication tool, the micro-selective atmospheric plasma jet, and how it enables the self-assembly of functional materials with a resolution of 12.5µm while dramatically reducing processing time, cost and environmental impact compared to conventional digital manufacturing techniques. The capabilities are demonstrated through the patterning of materials with varied magnetic, conductive and mechanical properties onto silicone substrates to create flexible actuators, sensors and heaters.

Dr. Ahmed A. Busnaina, William Lincoln Smith Chair Professor, Distinguished University Professor Northeastern University

Email: a.busnaina@northeastern.edu

URL: www.nanomanufacturing.us

Ahmed A. Busnaina, Ph.D., has been the founding Director of the National Science Foundation's Nanoscale Science and Engineering Center for High-rate Nanomanufacturing since 2004 and the NSF Center for Microcontamination Control at Northeastern University, Boston, MA, since 2002. He is also the founder and CTO of Nano OPS, Inc. since 2017. Prior to joining Northeastern University, he was a professor and a director of the Particulate Control Lab at Clarkson University from 1983-2000. Dr. Busnaina is internationally recognized for his work on semiconductor fabrication with an emphasis on yield. He also developed nano and microscale additive manufacturing for making interconnects, passive and active electronic components, LEDs, and sensors. He authored more than 600 papers in journals, proceedings, and conferences. He also has 25 granted and 45 pending patents. He was awarded the 2020 American Society of Mechanical Engineers (ASME) William T. Ennor Manufacturing Technology Award and Medal. He is a fellow of the National Academy of Inventors, a fellow of the American Society of Mechanical Engineers, and a Fulbright Senior Scholar. He is an editor of the Journal of Microelectronic Engineering. He also serves on many advisory boards, including Samsung Electronics, the Journal of Electronic Materials Letters, the Journal of Nanomaterials, and the Journal of Nanomanufacturing.

Prof Keeley Crockett, Manchester Metropolitan University, UK

Keeley Crockett (SMIEEE, SFHEA) is a Professor in Computational Intelligence at Manchester Metropolitan University She has over 27 years' experience of research and development in Ethical and responsible AI (for both SME's and an advocate for citizen voice), computational intelligence algorithms and applications, including adaptive psychological profiling, fuzzy systems, semantic similarity, and dialogue systems. Keeley has led work on Place based practical Artificial Intelligence, facilitating a parliamentary inquiry with Policy Connect and the All-Party Parliamentary Group on Data Analytics (APGDA), leading to the inquiry report "Our Place Our Data: Involving Local People in Data and AI-Based Recovery". She is one of the five EPSRC Public Engagement Champions and currently the PI on the EPSRC "PEAs in Pods: Co-production of community based public engagement for data and AI research." Keeley was one on the Founders of the People Panel for AI, funded originally by The Alan Turing Institute and in 2024 by Manchester City Council. She is currently working on several Innovate UK Knowledge Transfer Partnerships (e.g. GMCA) and a steering committee member for the UK Government Inquiry on Skills in the Age of AI. Keeley is working with the UK Government Digital Cabinet Office and was a collaborator on the AI Playbook for the UK Government released in 2025. She is also part of the International Agentic AI Safety Experts Focus Group which includes the development of the Guidelines for Agentic AI Safety Volume 1&2 (2024, 2025). Keeley is a member of UKRI's AI & Robotics Strategic Advisory Team and the EPSRC SAN on EDI, an elected member of the IEEE Computational intelligence Society ADCOM (2023-25), Founder and past (2022-2024) Chair of the IEEE Technical Committee SHIELD (Ethical, Legal, Social, Environmental and Human Dimensions of AI/CI) and chairs the IEEE AI Coalition Responsible AI subcommittee.

Prof. Keeley A Crockett SFHEA SMIEEE
Professor in Computational Intelligence
Lead Data and AI Ethics Group / Lead Machine Intelligence Group
Past Chair (2022-2024) IEEE Technical Committee on Ethical, Legal, Social, Environmental and Human Dimensions of AI/CI (SHIELD)
Department of Computing and Mathematics
Manchester Metropolitan University
Chester Street, Manchester, M1 5GD
Email: K.Crockett@mmu.ac.uk
Keeley Crockett's Virtual Office Hours on Teams please email K.Crockett@mmu.ac.uk for an appointment

PEAs in Pods
Community | Engagement | Research

EPSRC PEAs in Pods: Co-production of Community Based Public Engagement for Data and AI Research

Talk Title: **Participatory AI: Empowering AI with Human Insight**

Abstract: Creating responsible and trustworthy AI requires more than technical excellence—it demands ethical awareness, legal foresight, and a deep understanding of societal impact. As new legislation and ethical frameworks emerge, developers and decision-makers face complex challenges in aligning AI systems with public values and expectations. This talk first explores Participatory AI, an inclusive approach that actively involves communities, users, and stakeholders throughout the AI lifecycle. By embedding transparency, collaboration, and shared ownership into design and deployment, participatory methods ensure AI reflects the needs and rights of the people it affects. Drawing on real-world research projects that unite academia, industry, and the public, the talk will showcase how ethical toolkits and co-production practices are being used to empower citizens, enrich academic inquiry, and guide businesses toward socially responsible innovation. These examples illustrate how inclusive design not only builds public trust, but also leads to more robust, meaningful, and ethically sound AI solutions.

Prof. Liangxiu Han, Manchester Metropolitan University, UK

Liangxiu Han is currently a full Professor of Computer Science at the Department of Computing and Mathematics, Faculty of Science and Engineering, Manchester Metropolitan University. Prof. Han is Faculty Lead for AI, Digital and Cyber Physical Systems (https://www.mmu.ac.uk/about-us/faculties/science-engineering/research/themes/ai-digital-cyber-physical-systems) and Deputy Director of ManMet Crime and Well-Being Big Data Centre. Prof. Han's research areas mainly lie in the development of novel big data analytics/Machine Learning/AI, and development of novel intelligent architectures that facilitates big data analytics (e.g., parallel and distributed computing, Cloud/Service-oriented computing/data intensive computing) as well as applications in different domains (e.g. Precision Agriculture, Health, Smart Cities, Cyber Security, Energy, etc.). As a Principal Investigator (PI) or Co-PI, Prof. Han has a proven track record of successfully leading multi-million-pound projects on both national and international scales (supported by diverse funding sources: UKRI, GCRF/Newton, EU, Industry, and Charity) and has extensive research and practical experiences in developing intelligent data driven AI solutions for various application domains (e.g. Health, Food, Smart Cities, Energy, Cyber Security) using various large datasets (e.g. images, numerical values, sensors, geo-spatial data, web pages/texts). Prof. Han has served as an associate editor/a guest editor for a number of reputable international journals and a chair (or Co-Chair) for organisation of a number of international conferences/workshops in the field. She has been invited to give a number of keynotes and talks on different occasions (including international conferences, national and international institutions/organisations). Prof. Han is a member of EPSRC Peer Review College, an independent expert of European Commission for proposal evaluation/mid-term project review, and British Council Peer Review Panel.

Prof. Liangxiu Han, *Faculty Lead for AI, Digital and Cyber Physical Systems, Manchester Metropolitan University, UK*
Profile: http://www2.docm.mmu.ac.uk/STAFF/L.Han/
E: L.Han@mmu.ac.uk

Talk Title: Scalable Learning from Remotely Sensed Data

Abstract: The rapid expansion of remotely sensed data from satellites, UAVs, and IoT-enabled ground sensors is revolutionizing our ability to observe and understand the planet. Yet, turning this deluge of high-dimensional, heterogeneous, and spatiotemporal data into timely, actionable insights remains a major scientific and technical challenge. Recent advances in deep learning—originally transformative in computer vision tasks like image classification, object detection, and semantic segmentation—are now proving equally powerful for remote sensing applications. This talk will explore the frontiers of scalable learning from remotely sensed data, highlighting how cutting-edge deep learning and AI techniques are reshaping

environmental intelligence at scale. Drawing on real-world case studies, we demonstrate how high-resolution imagery is being used to support informed decision-making in diverse applications, from land cover classification and object-level mapping to crop health monitoring and vegetation disease detection.

Engr Paul Sheedy, *Founder/ CEO, Unifi.id*
A serial entrepreneur in innovative technology. His is experienced in loyalty data solutions globally, digital comms, design and detection systems. Previously, Paul was the co-founder of EYC.

Talk Title: **The Role of Big Data Analytics, IoTs and Artificial Intelligence in ASSET-based Smart Infrastructure**

Dr Sara Jones, *City St George's University of London, UK*

Sara Jones is a Reader in Creative Interactive System Design in the Faculty of Management at Bayes Business School, Director of the Centre for Creativity in Professional Practice, and Course Director for the interdisciplinary Master's in Innovation Creativity and Leadership (MICL). She is currently completing work as a Co-Investigator of the Innovation for African Universities (IAU) programme, funded by the British Council. The IAU programme has sought to strengthen the entrepreneurship and innovation ecosystem and improve student employability outcomes in Sub Saharan African universities in 5 countries (Ghana, Kenya, Nigeria, South Africa, UK), 80+ organisations (including 50+ universities in the UK and Sub-Saharan Africa), 35 projects involving 300+ academics and colleagues in entrepreneurial ecosystems, and impacting over 7000 students in 2 years. Sara is exploring links between creativity, innovation, leadership and resilience, building on work with colleagues as Principal Investigator of the Boosting Resilience project, funded by Arts Council England, and using a combination of arts-based methods, applied creativity and business thinking to deliver creative enterprise training to students and entrepreneurs in Armenia and Kyrgyzstan in two Creative Spark projects, funded by the British Council. From 2011 – 2015 Sara was a Senior Lecturer in the Centre for Human-Computer Interaction Design at City University, and from 2006 - 2011, she held an RCUK Research Fellowship in creativity applied to design and engineering, with a particular focus on the design of interactive systems.

Ongoing research interests include the use of new and emerging technologies to support creative processes, as well as the application of creative requirements and design techniques in both small and large-scale software and service development projects. Sara has been a Principal/Co-Investigator on a number of AHRC-, JISC-, EU- and bilaterally funded research projects worth over £10million, over £1million of which has come to City. She has published more than 120 peer-reviewed papers in academic journals and conference proceedings, supervised 9 PhD students, taught a wide range of different courses at undergraduate and postgraduate level, and consulted for a number of major organisations.

***Talk Title*: Creativity in the Design of Adaptive and Sustainable Interactive Systems**

Abstract: This paper explores the role of creative thinking in the specification and design of complex socio-technical systems, with a particular focus on adaptive and sustainable systems. Drawing on early work in domains such as air traffic control, we reflect on how creative thinking was initially introduced using simple tools like paper post-its, before evolving through the use of digital creativity support tools to today's powerful generative AI technologies. These technologies are now widely used to produce creative outputs in fields such as marketing and product development but their application in the context of adaptive and sustainable system design has so far not been widely reported. Here we will argue that the same principles that were developed to support the design of early digital creativity support tools may still today provide a useful guide, not only for our use of tools such as generative artificial intelligence while developing new systems, but also for the design of the adaptive and sustainable interactive systems themselves, in ways that support and augment their users' creative thinking, to find new ways to adapt, and better approaches to long term sustainable solutions.

BAYES BUSINESS SCHOOL
CITY ST GEORGE'S UNIVERSITY OF LONDON

Dr. José V. Anguita, University of Surrey, UK

José V. Anguita received his B.Sc. degree in Chemical Physics and M.Sc. in the Physics of Advanced Electronic Materials from the University of Bristol in 1996 and 1997 respectively, and Ph.D. degree from the Electrical and Electronics Department of the University of Surrey in 2000. He was a process engineer at BAE Systems working on advanced infrared MEMS devices. After his Ph.D., he worked developing the then World's fastest production SMQW and DFB semiconductor lasers and fibre-coupling lasers at Hewlett Packard/Agilent Technologies. He then worked on advanced high-density plasma systems for thin-film deposition and surface modification at Plasma Quest Limited. In 2006 he joined the Advanced Technology Institute (ATI) within the Faculty of Engineering and Physical Sciences (FEPS), University of Surrey in Guildford U.K., where he developed nano-technological processes and equipment for the growth of a low-k dielectric material for fast transistors, promoting University spin-out company Surrey NanoSystems. in 2010 he developed new technologies and directed a 15-year international programme with EADS-Astrium/AIRBUS D&S for the design and development of ultra-high stability carbon-fibre composites for spacecraft. These are used in precision-optics for telescopes and spectrometers used for deep-space exploration and Earth observation missions from the Copernicus program, including Sentinel, Athena, Lisa, Ariel and Plato. In 2017, he became the Cleanroom and Laboratories Manager at both the ATI and the National Physical Laboratory (NPL) in Teddington, UK. He has co-authored 76 peer-reviewed publications in scientific, modelling and characterisation journals including book chapters, 1,500 citations 25,000 reads, inventor of five patents and Faculty researcher of the year. He has presented at several international conferences including invited and keynote. He lectures laser physics and fibre-optic communications, and advanced photolithographic and printing techniques for microchip fabrication.

***Talk Title*: Nanostructured Optical Super-absorbers for Energy Generation, Heat Management in Space and Energy Harvesting**

Prof Jamal Mohamed Ahmouda Zaid
Research and Development Center, HUAWEI Technologies, Canada

Jamal Zaid (Senior Member, IEEE) received his B.A.Sc. in Microwaves Engineering from Electrical and Electronic College, Bani-Walid, Libya, in 1997, his M.A.Sc. in Communications & Microwave Engineering from Academy of Graduate studies, Tripoli, Libya in 2008, and his Ph.D. in Telecommunication from the University of Quebec, Montreal, QC, Canada in 2018. He was Assistant Professor and Head of the Communications Department of the Higher Institute of Comprehensive Professions, Bani-Walid, Libya, from 2008 to 2013. He is currently a Professor and Senior Engineer in the Research and Development Center of Huawei Technologies, Ottawa, Canada. His research activities have been centered on antenna design, coupling reduction for multiple input and multiple-output (MIMO), Full Duplex System, Radio Frequency Identification (RFID), Frequency Selective Surface (FSS), Electromagnetic Bandgap (EBG), Wireless Sensor and antenna miniaturization. He is adjunct professor at Quebec University since 2019. Dr. Jamal Zaid was a recipient of Innovation Pioneer Award 2020 as well as future star Award 2023 from the Research and Development Center of Huawei Technologies.

Talk Title: **5G and 6G Full Duplex Applications**

Etom Ofem, Regional Higher Education Insights Lead, British Council

Etom Ofem is a seasoned Research, Monitoring, Evaluation, and Learning (MEL) expert with over 14 years of experience driving data-informed development across Sub-Saharan Africa. Currently the Research, Evaluation, and Insights Lead at the British Council, he pioneers innovative MEL strategies, climate-focused initiatives, and enterprise support programmes. Etom blends statistical expertise with digital tools to shape impactful policies and programmes, championing inclusive, evidence-based development. He holds an MSc in Development Economics and is passionate about transforming data into actionable insights for sustainable change. Etom currently leads the SSA insights hub of the British Council where he leads the regional programme of generating insights that supports partnerships and collaborations between the UK and SSA.

Etom Ofem | Regional Higher Education Insights Lead SSA |Higher Education| Cultural Engagement |British Council, Nigeria| Plot 3645 IBB way Maitama district| Abuja| Nigeria

Book time with Ofem, Etom (Data Evidence and Performance) |M: +234(0)703 077 3209; BCTN (internal) 8387 4524;

Etom.Ofem@ng.britishcouncil.org , **education-services.britishcouncil.org; www.britishcouncil.org.ng**

***Talk Title*: Unlocking African Youth Potential through International Higher Education Partnerships: Pathways to Empowerment and Sustainable Development**

Africa's youth population is projected to double by 2050, presenting both a demographic dividend and a developmental challenge. This study investigates the role of International Higher Education Partnerships (IHEPs) in addressing systemic gaps in higher education and employment across Sub-Saharan Africa, with a focus on Nigeria, Kenya, Ghana, and South Africa. The research aimed to Examine how IHEPs contribute to youth empowerment and employability; Explore youth participation in higher education policy-making; Identify success factors and barriers in IHEP implementation; and Provide actionable recommendations for stakeholders. A complexity-informed action research approach was employed, combining a systematic literature review with primary data collection through 48 key informant interviews and 53 survey responses. Youth comprised 75% of respondents, ensuring their perspectives were central. Data were analysed thematically and triangulated with secondary sources. The key findings include: Skills Mismatch: 85% of youth reported a disconnect between university curricula and labour market needs, citing outdated content and limited practical training; IHEP Impact: Participation in IHEPs significantly enhanced employability, with a 23% higher

likelihood of securing employment within a year of graduation; Barriers: Financial constraints, limited awareness, and inequitable access hinder youth participation in IHEPs; Youth Voice: While formal structures for youth engagement exist, participation remains largely tokenistic, necessitating systemic reform; Success Factors: Effective IHEPs are characterised by mutual respect, alignment with local priorities, inclusive design, and robust monitoring and evaluation. The key recommendations span align curricula with labour market demands; institutionalise youth participation in policy-making; develop sustainable funding models for IHEPs; foster South-South collaborations and digital inclusion. IHEPs hold transformative potential for youth empowerment in Africa. However, realising this requires equitable partnerships, youth-centred design, and sustainable policy frameworks. The study calls for a shift from extractive to reciprocal models of collaboration that prioritise local agency and long-term impact.

Keywords: International Higher Education Partnerships, Youth Empowerment, Sub-Saharan Africa, Employability, Policy Participation, Sustainable Development
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Prof. Jaume Anguera, IEEE Fellow, Founder / CTO, Ignion (Barcelona, Spain) and Ramon LLull University, Spain.

Jaume Anguera, IEEE Fellow, founder and CTO at the technology company Ignion (Barcelona, Spain), Associate Professor at Ramon LLull University and a member of the Smart Society research group. He is an inventor of more than 170 granted patents, most of them licensed to telecommunication companies. Among his most outstanding contribution is that of the inventor of the Antenna Booster Technology, a technology that fostered the creation of Ignion. The wireless industry has adopted many of these products worldwide to allow wireless connectivity to IoT devices through a miniature component called an antenna booster that is ten times smaller than conventional antennas. Author of more than 280 widely cited scientific papers and international conferences (h-index 53). Author of 7 books. He has participated in more than 22 competitive research projects financed by the Spanish Ministry, CDTI, CIDEM (Generalitat de Catalunya), and the European Commission for an amount exceeding $13M as a principal researcher in most of them. He has taught over 40 antenna courses worldwide (USA, China, Korea, India, UK, France, Poland, Czech Republic, Tunisia, Perú, Brazil, Canada, Spain). With over 23 years of R&D experience, he has developed part of his professional experience with Fractus in South Korea in designing miniature antennas for large Korean companies such as Samsung and LG. Since 2017 he has been with Ignion in the role of CTO. He leads the company's R&D activity to create new products, envisage new technologies, and provide technology strategy to scale the company's business. He has received several national and international awards (ex. 2004 Best Ph. D Thesis -two prizes, one given by Telefónica Mobile, 2004 IEEE New Faces of Engineering, 2014 Finalist European Patent Award). He has directed the master/doctorate thesis to more than 160 students, many of them have received awards for their thesis (COIT, COITT, Ministry of Education). His biography appears in Who'sWho in the

World and Who'sWho in Science and Engineering. He is an associate editor of the IEEE Open Journal on Antennas and Propagation, Electronics Letters, and a reviewer in several IEEE and other scientific journals. He is an IEEE Antennas and Propagation Distinguished Lecturer and vice-chair of the working group "Software and Modeling" at EurAAP. More info at http://users.salleurl.edu/~jaume.anguera/

Prof Hans Degens

Expertise: Age-related Changes of the Muscles and Human Body Systems

Department of Life Sciences, Research Centre for Musculoskeletal Science and Sports Medicine, Manchester Metropolitan University, Manchester, UK; Institute of Sport Science and Innovations, Lithuanian Sports University, Kaunas, Lithuania

The main academic interest is age-related changes in skeletal muscle morphology and function. Thereto we apply single skinned muscles fibres from human muscle biopsies and rodents. The use of single skinned muscle fibres allows one to determine changes in cross-bridge kinetics and fibre function without bias that can be introduced in vivo by e.g. changes in neural drive. Muscle is highly adaptive and resistance (including overload model in rats) and endurance training are used to assess changes in muscle (fibre) function and morphology. Recently we have also explored how hypoxia does affect the muscle, as not only mountaineers, but also patients with chronic diseases as heart failure and chronic obstructive pulmonary disease and elderly people, may suffer from hypoxia. Of interest is how the muscle adapts to maintain an adequate oxygenation during hypoxia and hypertrophy. The latter is of interest as an increase in fibre size may increase the diffusion distances from the capillaries to the interior of the muscle cell. In smokers this may be aggravated by the presence of carboxyhaemoglobin that not only reduces the oxygen carrying capacity in the blood but also the release of oxygen in the muscle due to the left-shift of the haemoglobin dissociation curve. The impact of smoking and smoking cessation on muscle function is an area of continuing interest. In addition, we have an interest in the impact of space travel on the nueromuscular system.

Talk Title: A Great Asset to Society: Older People with a Sustained Physical and Cognitive Function

Abstract:
We are warned of an imminent global ecological catastrophe that can only be averted by draconian measures, such as reducing the global population. The thought of such measures may contribute to reducing the value the life of particularly older people, who are considered a liability to the economy. Realiz-ing that i) rather than heading for an imminent catastrophe, ii) casualties from natural disasters and air pollution are significantly fewer than 100 years ago, and iii) life expectancy and quality of life have increased even in the poorest coun-tries,

puts human life in a more positive light, and sees older people with their wealth of experience more as an asset than a liability, supported by their signifi-cant socio-economic contribution to society. This then is an impetus to seek ways to improve the quality of life of the older person, and here it is suggested, using as an example the benefits of exercise for muscle and cognitive function, that regular exercise can be an effective means to do so.

Engr Stephen Alabi (MIET)

Stephen Alabi is the Founder and Managing Director of SmOp CleanTech and has overall responsibility for its operational performance. Stephen is also the driving force behind SmOp's strategic plan. He holds a BSc in Engineering Physics and a MSc in Advanced Process Design for Energy from The University of Manchester, UK. His background is in the scientific aspects of the Company's project which has aided products delivery and knowledge transfer. Stephen's involvement in setting the strategic direction of the business and authority to commit resources to support Research and development projects make him the ideal candidate to act as Senior Business Employee. Mr Alabi was the Technical Programme Chair at the Second International Adaptive and Sustainable Science, Engineering and Technology (ASSET) Conference 2023 held in Manchester, UK and gave a Keynote Speech on "*Hybrid Wireless Power Transfer for Passive Electronic Appliances*." SmOp CleanTech is the Diamond Sponsor of the ASSET Conference and Engr Alabi is an Executive Stakeholder of the ASSET Council. He has 10 peer-reviewed and refereed technical publications and 10+ peer-reviewed articles on "green energy development for future-generations telecoms infrastructure" in-preparation. Under Stephen's R&D engineering leadership, SmOp has developed intellectual properties and patentable green radio frequency communication and low-carbon hybrid RF-solar energy harvesting products for different horizontal and vertical use cases spanning civil and commercial applications for the major industries/sectors. He currently leads the R&D of passive, hybrid and active energy-efficient and ultra-low-carbon internet of things sensors electronics innovations using advanced nanoscale integrated manufacturing technology for the global net zero attainment.

Dr Segun Obadire
University of Venda, South Africa

Olusegun Obadire holds a Ph.D in Rural Development and has a background in Computer Science and Economics. He started working as international education practitioner in 2011 and he is the current Director International Relations at the University of Venda, South Africa where he is involved with strategic planning for linkages, partnerships and implementation of internationalisation at the University. He participates in teaching, learning, research and community engagement as supervisor, external examiner, journal reviewer, principal investigator and lecturer, teaching Entrepreneurship and Big Data. He has graduated one PhD, 3 master's and 25 honour's students since 2014. He is currently supervising one PhD candidate and 2 Master's students. He has published about 45 articles in accredited journals on internationalisation of higher education, rural and community development. He has presented and chaired sessions at over 20 conferences around the world since 2012. His research work is mainly focusing on integration of intercultural programmes, internationalisation of higher education and rural entrepreneurships at the University.

Keynote / Dinner Talk Title: Internationalisation of Higher Education through Research Collaboration
Dr. Segun Obadire, University of Venda, South Africa
Email: Segun.Obadire@univen.ac.za

Dr Prabhuraj Venkatraman (Prabhu)

Senior Lecturer in Technical Textiles and Sustainable Fashion, Manchester Fashion Institute [MFI], Manchester Metropolitan University, U.K.

Prabhu, a technical textile specialist and a Chartered Fellow of the Textile Institute, is a prolific researcher and a dedicated mentor. His research interests include using innovative sustainable materials, developing functional apparel, and technical textiles to improve health. He has made significant advancements in the development of bio-functional finishing of fabrics with antimicrobial properties using plant-based nano-emulsions. His other research areas include the development of socks for diabetic patients to monitor shear force or strain and prevent the formation of ulcers. His current projects include the development of smart face coverings with antimicrobial properties and the development of novel micro and nano-fibres using seaweed (alginate) for healthcare applications. He regularly disseminates his research at international and national events and is a journal peer reviewer. As a Doctoral college Department lead [DCDL] for Manchester Fashion Institute, he plays a crucial role in postgraduate admissions and progression. He imparts his knowledge of sustainable fashion and product innovation to PG and UG students, inspiring the next generation of researchers. He

has supervised five PhD students and four Master by Research (primary supervisor). He supervises three PhD students and continues to nurture future scholars. He also serves as a personal tutor, offering pastoral guidance and support for UG students.

Talk Title: "The Importance of Lifecycle Assessment to Determine the Environmental Impact and the Use of Technologies to Enhance Traceability and Circularity in the Fashion Industry"– *Dr Prabhuraj Venkatraman, Manchester Met University, UK*

The fashion industry is valued at 2.5 trillion USD and employs more than 75 million people globally. Recently, apparel and textiles consumption has increased significantly, and people use clothes for a shorter period, resulting in substantial waste generation. The fashion supply chain is complex and consumes much water, energy, and resources. The textile finishing industry dries up water resources, and nearly 60-70% of products are synthetic. Washing up these products releases enormous volumes of micro-fibres, which affect the aquatics in river streams. These synthetic textiles contribute to a significant impact on the environment and climate. Due to their impact, it has been a focus for many, including the industry, government, and academics, to study the impact areas methodologically and lower or minimise the environmental impact. The lifecycle assessment [LCA] is an essential tool to evaluate the environmental impact of textiles and apparel products in each life stage, including raw material extraction, fibre processing, yarn spinning, fabric formation, garment manufacturing, distribution, consumer use and end-of-life. In addition to determining the impact, it has been essential to monitor the textiles and clothing at the production level, including who made the product, where and how it has been made, tracing its environmental footprint and how it should be cared for and maintained by the consumer and identifying its re-use potential after it reaches the end-of-life. A digital product passport (DPP) has been proposed for implementation in the EU by 2030 for all fashion and textiles, offering comprehensive data about the product's environmental footprint. In this paper, the author identifies the challenges of implementing these initiatives within the supply chain with some examples and identifies a transition toward sustainable and circular fashion and textiles.

Dr. Duncan Elly Ochieng
University of Nairobi, Kenya

Duncan Elly Ochieng is a Senior Lecturer at the University of Nairobi, Faculty of Business and Management Sciences. Duncan has expertise in entrepreneurial and innovation ecosystems development, finance and investments. He leads global projects that blend academia, practical innovation and industry partnerships to drive sustainable development. He manages impactful initiatives including Entrepreneurship Educators Foundation of Eastern Africa, African Journal of Entrepreneurship and Innovation (AJeIN) and African Development Finance Journal (ADFJ). Duncan was a co- principal Investigator in both the Youth Entrepreneurship Accelerator Programme

(YEAP) and the Global Entrepreneurial Talent Management (GETM4). He was also a principal investigator in the Triple H: Building Head, Heart and Hand set in young Entrepreneurs through Storytelling and Design Thinking.

***Talk Title*: Evaluating Entrepreneurial and Innovation Ecosystems Transformation in Universities in Kenya**

Abstract:
This study investigates the entrepreneurial and innovation ecosystems within Kenyan universities, recognizing their pivotal role in economic development through research commercialization and startup incubation. Despite their potential, universities face challenges such as limited infrastructure, funding constraints, and a nascent entrepreneurial culture. The research aims to fill gaps in empirical evidence by employing a Theory of Change framework to understand how universities contribute to these ecosystems and identifying factors influencing their effectiveness. Key objectives include assessing the impact of entrepreneurial initiatives and evaluating the applicability of performance metrics in measuring outcomes. Adopting a mixed-methods approach, the study integrates qualitative methods like interviews and case studies with quantitative analyses such as surveys and secondary data review. By exploring collaborative models like the Triple Helix, Quadruple Helix, and Quintuple Helix, the research seeks to enhance understanding and practices for sustainable innovation in Kenyan higher education, informing future policies and strategies.
Key Words: Entrepreneurial and Innovation Ecosystems, Transformation in Universities, Innovation Helices

Prof Isaac Busayo Oluwatayo, University of Venda, South Africa

Isaac B. Oluwatayo is a full Professor of Agricultural Economics in the Department of Agricultural Economics and Agribusiness, University of Venda, South Africa. Prior to joining University of Venda, he has taught at the University of Limpopo, South Africa, University Ibadan, Nigeria and University of Ado-Ekiti (Now Ekiti State University), Nigeria. Prof IB Oluwatayo has supervised more than 60 undergraduate projects and 70 Dissertations and Theses (63 MSc and 7 PhDs). He is a well-travelled person and has over 100 articles comprising of over 80 journal articles in reputable local and international outlets, conference papers and book chapters. Prof IB Oluwatayo's research interests span through poverty analysis and food security issues, economics of climate change and smallholder agriculture, gender and financial inclusion issues. He is a consultant to both national and international organisations, member of editorial advisory board of Journals and has won several academic and research awards.

***Talk Title:* Between Sustainability and Survival: Harnessing Adaptive Science, Engineering, and Technology for Agricultural Transformation in Africa**

Dr Yasir Al-Yasir, Queens Mary University, London, UK

Yasir Al-Yasir (Member, IEEE) is currently a post-doctoral researcher at the Queens Mary University, London, UK. he has worked as a research and development engineer and post-doctoral researcher working with the RF, telecommunication and space industry in the UK. He received the B.Sc. and M.Sc. degrees from the University of Basra in 2012 and 2015, respectively, and the Ph.D. degree from the University of Bradford in 2021. In 2014, he joined the Antennas and RF Engineering research group as a research visitor at the University of Bradford. From 2018 to 2020, he was appointed at the University of Bradford as a Marie Curie Research Fellow in the H2020-ITN-SECRET project targeting 5G mobile small cells and funded by the EU Commission. He was a staff member at the Faculty of Engineering and Informatics, University of Bradford, working as a Research Fellow in the SATNEX-V project, funded by the European Space Agency in 2021. Yasir is also a reviewer and guest editor for various high-ranking journals and publishers such as IEEE, IET, Wiley, Springer, Elsevier, and MDPI. Dr Al-Yasir is the recipient of various awards and prizes such as the Best Paper Award at the IEEE 2nd 5G World Forum and IEEE 4th 5G Summit Dresden, Germany. He has authored 2 books and 10 book chapters and published more than 140 journal and conference papers on aspects of RF and Microwave Engineering. His articles have more than 3871 citations with 32 h-index and 74 i10-index, as reported by Google Scholar.

Dr Paul Igwe, Associate Professor of Entrepreneurship and Innovation University of Lincoln, Lincoln, UK

Paul Igwe is the Programme Lead BA (Hons) Business with Entrepreneurship at Lincoln International Business School (LIBS), University of Lincoln. Also, he is the school Lead - Decolonising Curriculum and Research. He is a visiting Professor at Durban University of Technology (DUT) Durban, South Africa, and Nnamdi Azikiwe University Awka, Nigeria. He is a founding member of UNESCO Chair on Sustainable Development and Foresight at University of Lincoln. Dr Igwe have led several externally funded projects including £120K Innovation and Entrepreneurship for Higher Education (IE4HE) project, funded by British Council - Innovation for African Universities programme. Others include £25K Women in Higher Education Leadership in Nigeria project, and £25K Exploring Gender Disparities in South African Higher Education, both funded by British Council – Gender Equality Partnership programme; and £16K UK Research & Innovation (UKRI) QR Strategic on Higher Education policies. Dr Igwe has published over 80 journal articles in internationally top ranked Journals, about 12 book chapters and 4 books.

***Talk Title*: Sustainable Models of Circular Innovations and Entrepreneurialism**

Abstract: Through circular entrepreneurialism (CE), organizations develop sustainable business models and systems that focus on promoting economic, social, and environmental (ESE) impact, equitable and efficient resource management. This discussion will explore sustainable models of circular economy to highlight circular business cases, value propositions and entrepreneurial approaches. The concept of CE represents a creative innovation and cultural entrepreneurship where actors and stakeholders focus on exploring and exploiting opportunities and creating demand for circularity. CE develops new models of social and environmental action that produce the common good through corporate social responsibilities (CSR) approaches.

Dr Aryan Kaushik, Manchester Metropolitan University, UK

Aryan Kaushik is currently an Associate Professor at Manchester Met, UK, since 2024. Previously he has been with University of Sussex (2021-24), University College London (2020-21), University of Edinburgh (2015-19), Hong Kong University of Science and Technology (2014-15), and held visiting appointments at Imperial College London (2019-20), University of Bologna (2024), University of Luxembourg (2018), Athena RC (2020), and Bei hang University (2017-19, 2022). He has been External Assessor (Academic Promotion) at University of Hertfordshire (2025), External Assessor at University of Mauritius (2025), External PhD Examiner internationally such as at NIT Jalandhar (2025) and Universidad Carlos III de Madrid (2023). He has been an Invited Panel Member at the UK EPSRC Interiorisation Panel in 2023, UK EPSRC Proposals Reviewer since 2023, French National Research Agency (ANR) Proposal Reviewer in 2025, Core Member of the IEEE P1955 Standard on 6G-Empowering Robotics, Chair of IEEE ComSoc ETI on ESIT, Co-Chair of IEEE SIG on AITNTN, Editor of 5 books by Elsevier and Wiley on variety of topics such as ISAC, NTN, ESIT, Intelligent Metasurfaces and Digital Twins/Imaging, and several journals such as IEEE Transactions on Communications, IEEE Transactions on Mobile Computing, IEEE Communications Surveys and Tutorials, IEEE OJCOMS (Best Editor Award 2024 and 2023), IEEE Communications Letters (Exemplary Editor 2024 and 2023), IEEE IoT Magazine, IEEE CTN, and several special issues such as in IEEE Wireless Communications, IEEE Network, etc. He is also the host of the IEEE Communications Society Technology News Podcasts Series. He has been invited/keynote and tutorial speaker for 100+academic and industry events, and conferences globally such as at IEEE ICC 2024-25, IEEE GLOBECOM 2023-24, etc., and chairing in Organizing and Technical Program Committees of 14 flagship IEEE conferences such as IEEE ICC 2024-26, etc., and has been General Chair of 30+ workshops and special sessions such as at IEEE ICC 2024-25, IEEE GLOBECOM 2023-25, etc. Website: https://sites.google.com/view/aryankaushik.

Talk Title: **"6G Beyond only Communications: Role of Sensing, ESIT, AI and NTN"**

Abstract: In this keynote, Prof. Kaushik will present on the wireless evolution towards latest IMT-2030/6G framework, trends, challenges, standardization aspects, new spectrum opportunities, and related use cases. In particular we will discuss about achieving the "integrated", "intelligent" and "ubiquitous" 6G services through the utilization of integrated sensing and communications (ISAC), artificial intelligence (AI)/machine learning (ML), electromagnetic signal and information theory (ESIT), non-terrestrial networks (NTN), and synergies of

these key technologies for 6G innovation beyond just communications. We will discuss the latest research developments in achieving these technologies and their synergies aligning with the 6G framework, 3GPP standards, UN's sustainable development goals, and industry objectives, such as achieving sustainable and ubiquitous intelligence with NTN using ISAC and AI, ESIT aided ISAC and NTN, etc., leading to vital use cases such as in public safety and 6G-empowered robotics.

Neil Marshall, Development Director, Change School, London, UK

Keynote Talk: "Innovation, Growth and Jobs for the 21st Century"

Dinner Talk: "Green Entrepreneurship and Technopreneurship (GET): The Role of ASSETs"

Professor João Ponciano, University of Glasgow, UK

João Ponciano is a distinguished higher education professional with a robust track record in transnational senior leadership, academic excellence, and strategic management. With over two decades of experience spanning the UK, China, Singapore, and the Middle East. As a Co-Director of the Centre for Education Development and Innovation (CEDI) and a Professor of Transnational Higher Education at the James Watt School of Engineering, João has led impactful initiatives, including spearheading the development of a joint partnership between the University of Glasgow and Chinese institutions. In addition to his academic leadership, João brings a wealth of experience in corporate governance and business consultancy. He has advised on legal compliance, strategic development, and policy creation in various sectors, including healthcare and higher education. His global expertise is complemented by his commitment to enhancing student experience and promoting inclusivity in education. João holds a Ph.D. in Load Balancing and Quality of Service for Multimedia Networks, along with multiple advanced degrees in engineering, law, and academic practice. He is a Senior Fellow of the Higher Education Academy, a Chartered Engineer, and a Fellow of the Institute of Leadership and Management. His extensive research, publications, and public engagements further reflect his dedication to shaping the future of higher education and engineering.

Professor João Ponciano, ***CPE, LL.B. (Hons.), M.Eng. (Hons), M.A. (Distinction), Ph.D. C.Eng., MIET, CITP, MBCS, MIEEE, SFHEA, FinstLM***
Professor of Transnational Higher Education (Systems, Power, Energy), Co-Director Centre for Educational Development and Innovation,

James Watt School of Engineering Internationalisation Lead, University of Glasgow, UK
E: Joao.Ponciano@glasgow.ac.uk

Talk Title: **"Transnational Education in a Changing World: Policy, Impact, and Future Directions"**

Abstract: Transnational Education (TNE) has become a cornerstone of global higher education, fostering cross-border collaboration, student mobility, and institutional partnerships. However, as geopolitical shifts, digital transformation, and evolving policy landscapes reshape education, TNE faces both opportunities and challenges.
This keynote explores the impact of TNE on students, institutions, and host countries—examining academic outcomes, employability, and cultural exchange. It also delves into policy frameworks governing TNE, comparing regulatory approaches in key regions (e.g., UK, China, EU) and addressing tensions between quality assurance and scalability.
Finally, the discussion highlights contemporary issues, including:

- The role of digital delivery (hybrid vs. in-person TNE models).
- Equity and access in global education partnerships.
- Sustainability and ethical considerations in cross-border provision.

By reflecting on best practices and emerging trends, this keynote aims to spark dialogue on how TNE can adapt to remain inclusive, innovative, and impactful in a rapidly changing world.

Prof Samik Chakraborty, Dipartimento di Ingegneria dell'Informazione, Università Degli Studi Di Firenze, Italy

Short Course Title: **Cell-Free Massive MIMO based Beamforming for 5G NR and 6G Terrestrial and Non-Terrestrial Network (TN & NTN) Communication**

Abstract: Cell-Free Massive MIMO (CF-mMIMO) is a decentralized wireless architecture where distributed Access Points (APs) jointly serve users, eliminating cell boundaries. Compared to traditional cellular networks, it offers uniform coverage (no cell-edge users), higher spectral efficiency via macro-diversity and interference mitigation through coherent transmission. This proposed methodology incorporates contemporary technological advancements with futuristic aspects of 5G and beyond (6G) for Cell-Free Massive Multiple-Input Multiple-Output (CF-mMIMO): Spectral efficiency bounds (Using massive MIMO based channel estimation); Performance vs. cellular systems; and reconfigurable intelligent surfaces (RIS) optimization methods (particularly useful in strategic locations like, subway, tunnel, multi curved corridor of big buildings, etc.)
Cell-free massive MIMO can be beneficial for both Terrestrial Networks (TNs) and Non-Terrestrial Networks (NTNs), but the specific benefits differ. For TNs, it enhances capacity in dense urban areas and provides uniform coverage. For NTNs, it can improve connectivity in remote areas and enhance resilience.

Dr Qiuyu Wang, Manchester Metropolitan University, UK

Qiuyu Wang is a Senior Lecturer in Biomedical Science at Manchester Metropolitan University. She has been a HUCBMS external examiner since 2016. Her main research areas are cancer research and stem cell research, which include developing and evaluating new approaches for the diagnosis and treatment of cancer. Her research interests include investigating communication between cancer cells and immune cells in the tumour microenvironment, as well as studying biological effects of exposure to radio frequency or plasm on cancer cells. Dr Wang is a fellow of the Institute of Biomedical Science (UK), and an editorial board member of the British Journal of Biomedical Science. She is a member of the European Association for Cancer Research and the Federation of European Biochemical Societies. She co-edited the textbook Biomedical Science Practice (OUP), and co-wrote Thrive in Cell Biology (OUP). She was a reviewer for Newton Prize application (2018), and she reviewed grant application (in the panel of molecular biology, biotechnology) for National Science Centre, Poland (2021).

Talk Title: **Reprogramming the Tumour Microenvironment: Toward Sustainable Cancer Therapies in Healthcare through Macrophage Modulation**

Qiuyu Wang[1], Arfa Mahmood[1] and Rachel Edmondson[1,2]

[1]Manchester Metropolitan University, Manchester UK [2]Wythenshawe Hospital, Manchester UK

Cancer research plays a critical role in advancing sustainable living and healthcare by seeking treatments that not only improve patient outcomes but also reduce environmental impact, resource consumption, and health inequities. Colorectal cancer (CRC) is the third most prevalent malignancy worldwide, accounting for 10% of all cancer-related deaths. The tumour microenvironment (TME), particularly the role of tumour-associated macrophages (TAMs), is increasingly recognised as a critical driver of cancer progression, therapy resistance, and immunosuppression in CRC. This research aims to investigate new strategies to reprogram the TME- specifically by inducing anti-cancer macrophage phenotypes to improve cancer treatment outcomes and to reduce reliance on toxic, resource-intensive treatments. In this study, we evaluated the effects of immunomodulators 6-mercaptopurine (6-MP), 6-thioguanine (6-TG), and chemotherapeutic drugs on the interaction between HT-29 colorectal cancer cells and macrophages derived from monocytes in co-culture. Cell viability, cytokine expression (IL-4, IL-6), and macrophage phenotype markers (CD80, CD86, CD11, CD14, CD16) were assessed by RT-qPCR, flow cytometry or ELISA. The results showed that 6-MP reduced cell viability in a dose-dependent manner, though its effectiveness diminished over time. The combination of carboplatin with 6-MP elevated IL-4 levels, indicating a pro-inflammatory response. 6-MP and 6-TG treatments significantly increased expression of M1-associated markers and elevated IL-6 secretion, suggesting a shift toward an anti-tumoral macrophage phenotype and enhanced immune activation. These findings highlight the potential of macrophage modulation as a strategy to reprogram the TME and support the development of

more sustainable cancer therapies that align with principles of sustainability science by integrating health and ecological considerations. Further research is needed to optimise these combinations and translate in vitro findings into clinical application.

Engr Danilo Mariano, Yotta Volt, UK

Danilo Mariano is a mechanical engineer who also holds an MBA in business management from USP University and a professional master's degree (MSc) in management and technology in production systems at Centro Paula Souza in Brazil. He also had the opportunity to study at institutions such as the University of Michigan and the Technical University of Munich. Working since 2007 with business development and application engineering for the automotive sector, he has worked with important auto parts manufacturers and materials suppliers such as NSK, Gerdau and IMI. With years of international business Danilo has lived in Germany, USA and Japan before arriving in the UK to establish Gerdau graphene development outpost at the Graphene Engineering Innovation Centre (GEIC) located at the University of Manchester. After that he worked for a couple of graphene advanced material and electronics manufacturers to lead their commercial activities. He's currently working with Test and Measurements where he's the bridge between the idea and the test implementation (hardware and software) aiming to help R&D and business to accelerate their automation and AI journey.

YOTTAVOLT

Professor Idara Okon Akpabio, University of Uyo, Nigeria

Idara Okon Akpabio holds a Bachelor of Science Degree in Physics from the erstwhile University of Cross River State, Nigeria (1988). He obtained M.Sc. Mineral Exploration (Geophysics Option) from the University of Ibadan, Nigeria (1992). Later had Ph.D. in Applied Geophysics from the University of Science and Technology, Port Harcourt, (1997). In 2016, he got a Distinction in the Basic Certificate Course, Word of Faith Bible Institute (WOFBI).

He has professional / industry experience taken through the Geological Laboratory, Shell Petroleum Development Company (SPDC), Warri; Exploration Department, SPDC, Port Harcourt; Stanford University, Stanford, California and the University of Uyo, Nigeria. While in the Geological Laboratory, he led a massive study for SPDC that investigated the marine and coastal ecosystem of the Niger Delta, the study resulted in a world class first ever documentation on the heat dynamics of the marine, coastal and onshore environments titled; *Thermal State of the Niger Delta*. As a Geoscientist and mineral explorationist, he is leading a team of Earth Scientist in arriving at an acceptable profile in curbing global warming by sequestrating carbon and stopping gas flaring, a move to protect and harness the potentials of our marine, coastal and onshore environments. Prof. Idara Akpabio has been in the employ of the University of Uyo for over 30 years. He started lecturing as a Graduate Assistant in 1990; rose through the ranks and acquired relevant experience to become Professor in 2010. He is a **seasoned administrator** having served as Head, Department of Physics; past Dean, Faculty of Science; past Chairman, Committee of Deans; former member of the Governing Council and past Chairman, Appeals subcommittee of the Appointments and promotions Committee (Academic), all of the University of Uyo. **He is presently Dean, Faculty of Physical Sciences, University of Uyo, Nigeria.** Prof. Idara Akpabio has been a visiting lecturer in the Department of Physics: University of Calabar; Veritas University; Rivers State University; Cross River State University of Technology; and Federal University, Ndufu Alike. He has been on National Universities Commission (NUC) accreditation team to various Universities. Prof. Idara Akpabio has also served as External Examiner in various Universities; Rivers State University, University of Port Harcourt, University of Calabar, Michael Opara University of Agriculture, Osun State College of Education, Illaro Ogun among others. He is a fellow of the Institute of Oil and Gas Research, a member of several professional bodies including Nigerian Institute of Physics, Physics Writers Series Creation, Nigerian Mining and Geoscience Society and Nigerian Association of Petroleum Explorationists. He has authored and published several books in Physics and Geophysics. He has over 100 academic publications to his credit. He is the 57th Inaugural Lecturer of the University of Uyo, Nigeria. He is a Pastor of the Living Faith Church, married and blessed with children.

idaraakpabio@uniuyo.edu.ng; idara_akpabio@yahoo.com; M: +234 802 323 0794 / +234 703 385 3665

Talk Title: **Carbon Sequestration in Geologic Formations: A Significant Potential to Reduce Global Warming**

Abstract: The global imperative to limit atmospheric CO_2 concentrations demands adaptive and sustainable mitigation strategies rooted in robust science and engineering. This study investigates carbon sequestration in geologic formations as a high-impact, long-duration intervention to address global warming. Focusing on deep saline aquifers, depleted hydrocarbon reservoirs, and basaltic formations, we explore the physical, chemical, and operational parameters governing secure CO_2 injection and retention. Using integrative geomechanical models, site-specific risk assessments, and global case studies, we demonstrate the feasibility of leveraging Earth's subsurface as a stable carbon sink. Emphasis is placed on formation integrity,

caprock effectiveness, and adaptive monitoring systems employing seismic, gravimetric, and tracer-based tools. As part of the global sustainability discourse, our findings reinforce that geologic carbon sequestration when governed by science, policy, and transparency offers a scalable, adaptive pathway to climate resilience. The study calls for collaborative innovation in site selection, regulation, and knowledge sharing to mainstream this technology within a broader circular carbon economy.

Technical Papers

Paper ID:	**ASSET_2025_paper_04**
Paper Title:	**Assessing the Implications of Climate Change Policies on Agricultural Growth In Kenya**
Author(s):	**Gabriel Mwenjeri and Rachel Wanjau**

Paper ID:	**ASSET_2025_paper_05**
Paper Title:	**Advancing Inclusive Academia: Evaluating Institutional Support for Postgraduate Students with Disabilities in Kenya**
Author(s):	**Fredrick Githui**

Paper ID:	**ASSET_2025_paper_37**
Paper Title:	**Differential Evolution-Based Optimization of RF Power Harvesting System for Wi-Fi and 5G NR Frequency Bands**
Author(s):	**Samik Chakraborty, Fanuel Elias, Ayona Chakraborty, Amit Ghosh, Nurudeen Kolawole Olasunkanmi, Sunday Ekpo**

Paper ID:	**ASSET_2025_paper_07**
Paper Title:	**Financial Resilience of Savings Groups in Low- and Middle- Income Countries: A Systematic Review of Measures, Drivers and Implications**
Author(s):	**James Odongo, Twaaha Kigongo Kaawaase, Laura Orobia, Irene Nalukenge, Gorrettie Nakyeyune and Ismael Nkambwe**

Paper ID:	**ASSET_2025_paper_08**
Paper Title:	**The Moderating Effect of Governance on the Relationship Between Public Expenditure and Economic Security Among East African Member States: Public Expenditure, Governance and Economic Security**
Author(s):	**Wamagata Kairu, Duncan Elly Ochieng and Herick Ondigo**

Paper ID:	**ASSET_2025_paper_09**
Paper Title:	**Trade Automation and Performance of Securities Markets in East African Community, Within Member States: Trade Automation and Performance of Securities Markets in East African Community, Within Member States**
Author(s):	**Charles Kunyoria**

Paper ID:	**ASSET_2025_paper_10**
Paper Title:	**Evaluating Digital Transformation and Maturity in Youth-Led Micro, Small, and Medium Enterprises Across Sub-Saharan Africa: A Comparative Study in the Health, Energy, Environment, and Sustainability Sectors in Nigeria, Kenya, and South Africa**
Author(s):	**Duncan Elly and Caston Mputhia MputhiaDuncan Elly, Fanny Saruchera, Mc Edward Murimbika, Stephen Odock, Nixon Omoro, Zipporah Onsomu, Obigbemi Imoleay Foyeke and Caston Mputhia**

Paper ID:	**ASSET_2025_paper_11**
Paper Title:	**Financial Resilience of Small and Medium Enterpries in Uganda: A Case of SMEs in Gulu City**
Author(s):	**Irene Ayoo Oywa, Rachel Mindra and Agnes Noelin Nassuna, Musa Moya and Ismael Nkambwe**

Paper ID:	**ASSET_2025_paper_12**
Paper Title:	**Green and Digital Transformation of SMEs: Cross-Continental Lessons**
Author(s):	**Duncan Elly, Mustapha Douch, Hylke Vandenbussche, Gianluca Miscione, Fanny Saruchera and Islam Jaber**

Paper ID:	**ASSET_2025_paper_13**
Paper Title:	**Funding Strategy, Loan Growth, Asset Quality, Firm Size and Financial Performance of Deposit-Taking Microfinance Institutions in Kenya**
Author(s):	**Duncan Elly and Vincent Osewe**

Paper ID:	**ASSET_2025_paper_14**
Paper Title:	**Extensive Review of Deep Learning Based Sentiment Analysis in Electronic Media with Insights on Classifications and Datasets.**
Author(s):	**Umar Raza, Usama Younis, Samreen Ayaz and Faisal Riaz**

Paper ID:	**ASSET_2025_paper_15**
Paper Title:	**The Evaluation and Usage of Honeypots to Fight Against Cybercrimes**
Author(s):	**Hania Nadeem, Barra Touray and Umar Raza**

Paper ID:	**ASSET_2025_paper_17**

Paper Title:	**A Machine Learning Approach to Real-time Detection of Firearms in Varied Conditions: An Experiment on Raspberry Pi and Google Collab**
Author(s):	**Umar Raza, Afnan Akhtar, Faisal Riaz, Saeid Jamali and Faisal Latif**

Paper ID:	**ASSET_2025_paper_18**
Paper Title:	**An Assessment of the Effect of Cost Efficiency on the Financial Performance of Microfinance Banks in Kenya**
Author(s):	**Jane Mutuku, Duncan Elly Ochieng and Kennedy Okiro**

Paper ID:	**ASSET_2025_paper_21**
Paper Title:	**Holographic Beamforming with Sustainable mmWave Arrays: A New Frontier in Adaptive Connectivity**
Author(s):	**Sunday Enahoro, Sunday Cookey Ekpo, Stephen Alabi, Yasir Al-Yasir, Mfonobong Uko, Fanuel Elias, Rahul Unnikrishnan, Soham Ghosh and Nurudeen Olasunkanmi**

Paper ID:	**ASSET_2025_paper_22**
Paper Title:	**Internet of Things Public Key infrastructure using Reconfigurable Hardware Root of Trust**

Author(s):	**Sunday Cookey Ekpo, Mfonobong Uko, Rahul Unnikrishnan, Fanuel Elias, Nurudeen Olasunkanmi and Stephen Alabi**

Paper ID:	**ASSET_2025_paper_23**
Paper Title:	**Systematic Review of Government-Initiated Water Pollution Reduction Projects in Nigeria (2000–2025)**
Author(s):	**Godwin Emmanuel, Sunday Cookey Ekpo and Sunday Enahoro**

Paper ID:	**ASSET_2025_paper_24**
Paper Title:	**Multiport Network Modeling of Body-Implantable Antenna at 2.45 GHz**
Author(s):	**Soham Ghosh, Sanjana Chatterje, Sunday Cookey Ekpo, Sunday Enahoro, Fanuel Elias, Stephen Alabi and Bhaskar Gupta**

Paper ID:	**ASSET_2025_paper_25**
Paper Title:	**Policy Gaps and Institutional Challenges in Sub Saharan Africa Entrepreneurial and Innovation Ecosystems: A Qualitative Study of Innovation Frameworks**
Author(s):	**Duncan Elly**

Paper ID:	**ASSET_2025_paper_26**
Paper Title:	**Effect of Climate Smart Agriculture on the Poverty Status of Tomato Farming Households in Ekiti State, Nigeria**
Author(s):	**Olaniyi Ojo , Isaac Oluwatayo**

Paper ID:	**ASSET_2025_paper_27**
Paper Title:	**Industrial Chemistry: Evaluation of the Properties of Sponge Gourd and Maize Husk as Potential Bioplastic Raw Materials**
Author(s):	**Itoro Udo, Roland Nzan Ogar, Aniekan Effiong Akpakpan, Ukana Davis Akpabio and Sunday Cookey Ekpo**

Paper ID:	**ASSET_2025_paper_28**
Paper Title:	**Nanochemistry: Preparation of Lignin Nanoparticles and Application in the Adsorption of Methylene Blue from Aqueous Solution**
Author(s):	**Itoro Udo, Mmekutmfon Williams Ikpong, Aniekan Effiong Akpakpan and Sunday Cookey Ekpo**

Paper ID:	**ASSET_2025_paper_29**
Paper Title:	**Influence of Subjective Norms on Voluntary Taxpayers' Compliance among Small Taxpayers in Tanzania: A Case of Singida Tax Region**
Author(s):	**James Chindengwike**

Paper ID:	**ASSET_2025_paper_30**
Paper Title:	**A Comprehensive Review of Research Contributions in Smart Grid Communications and Energy Management**
Author(s):	**Mehdi Zeinali and Leila Ahmadi**

Paper ID:	**ASSET_2025_paper_31**
Paper Title:	**Joint Optimization of Pricing and Network Design in a Closed-Loop Supply Chain Under Demand Uncertainty Using a Mixed-Integer Linear Programming Approach**
Author(s):	**Leila Ahmadi, Mehdi Zeinali and Hamed Tayebi**

Paper ID:	**ASSET_2025_paper_32**

Paper Title:	**Between Sustainability and Survival: Harnessing Adaptive Science, Engineering, and Technology for Agricultural Transformation in Africa**
Author(s):	**Isaac Oluwatayo**

Paper ID:	**ASSET_2025_paper_33**
Paper Title:	**Does Masters Athletics Enhance Health- and Life-span?**
Author(s):	**Antonios Matsakas and Hans Degens**

Paper ID:	**ASSET_2025_paper_35**
Paper Title:	**Dielectric Polarizer Inspired Circularly Polarized Bird-Nest Antenna for X-band Applications**
Author(s):	**Samik Chakraborty, Aditya Mitra, Fanuel Elias, Ayona Chakraborty, Amit Ghosh, Swarnadipto Ghosh, Sunday Cookey Ekpo and Bhaskar Gupta**

Paper ID:	**ASSET_2025_paper_36**
Paper Title:	**Enterprise Resource Planning Systems and Organizational Sustainability of Major Retail Supermarkets in Nairobi City County, Kenya**

Author(s):	**Salome Richu and Solomon Gichohi**

Paper ID:	**ASSET_2025_paper_38**
Paper Title:	**Modulating Laser Optimisation for a Fibre-Integrated Reception Satellite Transponder System**
Author(s):	**Sunday C. Ekpo, Fanuel Elias, Mfonobong Uko, Sunday Enahoro, Rahul Unnikrishnan, Soham Ghosh, Swarnadipto Ghosh, Dipankar Saha, Stephen Alabi, Muhammad Ijaz, Itoro Udo, Kolawole Olasunkanmi and Samik Chakraborty**

Paper ID:	**ASSET_2025_paper_39**
Paper Title:	**Position Location and Tracking of 5G/6G/Wi-Fi IoT Devices using a Software-Defined Radio System**
Author(s):	**Sunday C. Ekpo, Rahul Unnikrishnan, Mfonobong Uko, Sunday Enahoro, Fanuel Elias, Dipankar Saha, Swarnadipto Ghosh, Stephen Alabi, Umar Raza, Samik Chakraborty, Kolawole Olasunkanmi and Itoro Udo**

Paper ID:	**ASSET_2025_paper_40**
Paper Title:	**Sustainability and Technology Readiness Levels of ASSET Products and Services**

Author(s):	**Sunday C. Ekpo, Fanuel Elias, Stephen Alabi, Sunday Enahoro, Mfonobong Uko, Rahul Unnikrishnan, Stephen Nemanja, Kolawole Olasunkanmi, Michael Ejim and Itoro Udo**

Paper ID:	**ASSET_2025_paper_41**
Paper Title:	**Fibre-Integrated Reception Satellite Signal Parameters Estimation Modelling for Channel-and-Weather-Aware Communication**
Author(s):	**Sunday C. Ekpo, Mfonobong Uko, Sunday Enahoro, Fanuel Elias, Soham Ghosh, Rahul Unnikrishnan, Stephen Alabi, Muhammad Ijaz, Kolawole Olasunkanmi and Itoro Udo**

Greater Manchester, UK

Greater Manchester's contributions to the UK's innovation and education span over the last 200 years and the Manchester city-region is a globally recognised centre of cultural, industrial and technological excellence. Manchester is a student-focused city with enriching sporting and buzzing social scenes. It is one of the world's top 3 student cities (QS Best Student Cities 2023) that showcase dynamic real international cuisine and cultural events.

Nairobi, Kenya

Nairobi is the capital city of Kenya. Besides its urban core, Nairobi National Park (a large game reserve that is famous for breeding endangered black rhinos and home to giraffes, zebras and lions) locates in the city. Neighbouring it is a well-regarded elephant orphanage. Nairobi serves as the take-off point for safari trips pan-Kenya. Nairobi is home to one of the most diverse landscapes worldwide – this makes this breathtaking small city such an amazing place to visit. It houses a wide variety of rare wildlife species that can only be found in the rain forests, wooded savannas and grassy plains of Kenya.