

Speakers

Reef-UKC Workshop

19th June 2025,
Conference Aston, Aston University



Prof Zhibin Yu, University of Liverpool

Professor Zhibin Yu currently holds the Chair of Energy Engineering in the Department of Mechanical and Aerospace Engineering at the University of Liverpool. He leads the Energy Research Cluster within the School of Engineering and holds a Royal Society Industrial Fellowship (2023–2027). His research focuses on thermal energy technologies, with particular interest in the underlying thermodynamic, heat transfer, and fluid-dynamic challenges. He is committed to developing innovative solutions for sustainable heating, cooling, and power generation, with expertise spanning heat pumps, refrigeration, energy storage, district heating and cooling networks, organic Rankine cycle systems, and thermoacoustics. Professor Yu has led or contributed to over 35 research projects with a combined value exceeding £30 million, funded by EPSRC, Innovate UK, Royal Society, and the European Commission. He has published more than 190 research papers, and currently serves as Associate Editor for Applied Energy (Elsevier) and npj Thermal Science and Engineering (Springer Nature), Subject Editor for Applied Thermal Engineering (Elsevier), and Section Editor-in-Chief for Frontiers in Thermal Engineering. He also sits on the editorial boards of Energy Reports (Elsevier) and the International Journal of Green Energy (Taylor & Francis).



Neil Wilson, Co-founder & CEO, Camfridge



Neil Wilson is a co-founder and CEO of Camfridge, a clean technology company based in Cambridge and Bletchley that is revolutionising refrigeration through magnetic cooling. Camfridge has developed a solid-state cooling system that eliminates harmful refrigerant gases, enhances energy efficiency, and supports circular recyclability — offering a transformative solution to cut carbon and reduce the cost of refrigeration.

A University of Cambridge spin-out, Camfridge has been pioneering this gas-free technology since 2005 under Neil's leadership, with over £15 million invested in technology development through support from Angel investors, InnovateUK, the EU, and more. Neil brings decades of experience in building and scaling innovation-led ventures, with a strong background in project finance, go-to-market strategy, and collaborative R&D.

Prior to Camfridge, Neil worked for US technology firm Microstrategy, held consulting roles with organisations such as Philip Morris International and Sprint, and previously co-founded Cibrix, an enterprise software company. Neil holds an MBA and PhD in physics. He is passionate about sustainable innovation and is committed to reshaping the cold chain through technology innovation.

Dr Dermot Cotter CEng FInstR – Institute of Refrigeration

With 35 years of experience in the refrigeration industry across a range of roles, he brings a wealth of technical and practical expertise. His focus in his role as Managing Director of Star Technical Solutions include designing more efficient refrigeration systems, heat decarbonisation, and diagnosing issues in faulty, inefficient, or unreliable equipment. He also has extensive knowledge of safety concerns related to ammonia, carbon dioxide, and flammable refrigerants. His work has been widely published, including numerous papers on refrigeration system safety and efficiency for the International Institute of Refrigeration.



Prof Satyanarayanan Seshadri, Indian Institute of Technology, Madras (IITM)

Prof Satyanarayanan Seshadri is an associate professor in the Department of Applied Mechanics, the head of the Energy Centre of Excellence at IITM and the faculty-in-charge of the Energy Consortium. He works in the area of energy efficiency enhancement through development of heat pumps, thermal energy storage systems, pressure to power recovery through expanders and long term grid scale energy storage. He is also the national coordinator of the Industrial Energy Assessment Cell (IEAC) with its hub at IITM and 9 more spokes at different IITs across the country. Prof Satya is also in-charge of establishing multi-lateral centres of excellence in the domain of energy and sustainability at IITM such as the recently established Australia-India Centre for Energy. Prior to this role, Satya helped create India's first on-campus pre-incubation, Nirmaan at IITM, which enabled student ideas to mature as start-ups. Nirmaan has now scaled to host more than 150 student teams, launched over 21 start-ups with a combined valuation of about 100 Million GBP.



Armin Esmaeilzadeh, Aston University

Armin is in the final year of his PhD in Mechanical Engineering at the University of Guilan, Iran, specialising in magnetic refrigeration for cryogenic and deep cooling applications. Currently, he holds a Visiting Research position at Aston University, collaborating with the Cooling and Heating Research Group under the supervision of Dr. Ahmed Rezk. His academic background includes a BSc in Fluid Mechanics and an MSc in Heat and Mass Transfer Enhancement using passive methods.



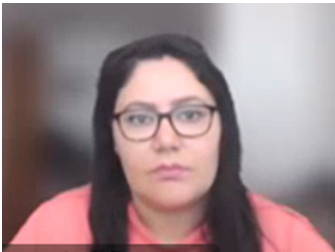
Mohammad Mehdi Keramati, Aston University

Mohammad Mehdi Keramati is a PhD candidate at the College of Engineering and Physical Sciences, Aston University, focusing on the integration of Deep Reinforcement Learning and Digital Twin technologies for energy-efficient manufacturing systems. He also works as a Research Assistant on the AI-Assisted Digital Twin of a Solar-Powered Refrigeration System for Clean Refrigerated Transport project at Aston University's Energy and Bioproducts Research Institute (EBRI). His research interests include Deep Reinforcement Learning, Energy Optimization, Digital Twin technology, and Control Systems.



Dr. Christopher Simon Brown, British Geological Survey

Dr Christopher Brown is a researcher with a strong expertise in numerical and analytical modelling of heat and fluid flux in the subsurface. Their focus has been on decarbonisation of the heating sector through characterisation and modelling of shallow-to-deep geothermal and underground thermal energy storage systems.



Fatemeh Ardakani, University of Birmingham

Fatemeh is a Senior Geotechnical Engineer, PhD Candidate and Research Assistant at the University of Birmingham. With over six years of international experience, she has delivered geotechnical design and ground investigation strategies for major infrastructure projects across the UK and the MENA region. Her work spans high-speed rail, tunnelling, and advanced foundation systems, with a strong emphasis on digitalisation and automation in ground engineering.

Fatemeh's research focuses on the application of AI and digital twin technologies to enhance the thermal performance and resilience of energy geostructures. She is currently investigating renewable and sustainable solutions for ground energy systems under the National Buried Infrastructure Facility (NBIF) Scholarship.

Fatemeh is an active contributor to the future of intelligent construction, a recipient of the BGA Fund (2025), and a winner of the ICE U32 Presentation Competition (2023). She is a Graduate Member of ICE, a Fellow of the Geological Society, and a student member of IAARC, actively promoting innovation in geotechnical engineering and energy transition.

Gerard Davies, EPSRC

Gerard Davies is a Senior Portfolio Manager in the Energy and Decarbonisation theme of the Engineering and Physical Sciences Research Council, EPSRC, part of UKRI. In his time at EPSRC he has led EPSRC work on Decarbonising Heating and Cooling and on two large funding opportunities in the area delivering £30M of research funding. His current portfolio covers Decarbonising Agriculture and Bioenergy, he is the theme contact for Programme Grants and he is the EPSRC contact for the Supergen Bioenergy Hub. He has worked in EPSRC for 10 years and has also been in the Manufacturing theme. In life before EPSRC he researched artificial neural networks and taught A Level Mathematics.

