SUSTENET

Edinburgh Workshop 2026

"Integrating Sustainability into Material Selection"

Co-located with ECT 2026

14th September 2026
Venue address:
John McIntyre Conference Centre, The University of Edinburgh, Pollock Halls
18 Holyrood Park Road, Edinburgh EH16 5AY

Monday, 14th September 13:30 – 17:00 GMT

Filipe Neves

Welcome message/intro about SUSTENET and the Workshop(s)

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WG1 Workshop (13:30-15:00)

(Each presentation: 20 min + 10 min discussion)

Suneela Sardar

Application-Driven Materials Selection and Processing for Sustainable Thermoelectrics

Dr Suneela Sardar is a Chartered Engineer and Senior Lecturer in Chemical Engineering at the University of Lincoln, with expertise in process simulation, sustainable materials processing and advanced manufacturing. Her research focuses on the development of resource-efficient and low-carbon process systems that support sustainable industrial transformation. She has extensive experience in process modelling and simulation for the optimisation of material and energy systems, enabling improved process performance, reduced environmental impacts and enhanced circularity.

She applies artificial intelligence and data-driven approaches to predict and optimise material properties for energy applications, accelerating the development of next-generation sustainable materials. Dr Sardar is also engaged in digital innovation and the integrated processing of critical materials for high-tech applications, combining process simulation, sustainability assessment and advanced manufacturing techniques. Through interdisciplinary research and international collaboration, she contributes to the development of resilient, digitally enabled, and sustainable industrial processes that align closely with the objectives of the SUSTENET COST Action.

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Geoffrey Roy

Beyond Sustainable Thermoelectric Materials: Eco-Design of Thermoelectric Systems for Industrial Applications

Geoffrey Roy is an electromechanical engineer with a PhD from UCLouvain in Belgium, specializing in thermoelectric materials and systems, with more than 15 years of experience bridging academic research and industrial innovation. He is currently R&D Manager at Thermo Power Systems, a startup aiming to deploy sustainable thermoelectric generation at industrial scale. In parallel, he serves as Senior Research Associate at UCLouvain, leading research across a broad spectrum of activities, from new materials development to the design and characterisation of pilot-scale demonstrators. His profile combines deep technical expertise, hands-on industrial deployment experience, and a strong commitment to bringing sustainable thermoelectric solutions to scale.

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Johannes de Boor

Standards and good practice guidelines for an efficient optimization and maturing of thermoelectric materials and devices

Institute for Frontier Materials on Earth and in Space German Aerospace Center (DLR); University of Duisburg-Essen

J. de Boor is a physicist and materials researcher working at the interface of materials science, physics, chemistry and engineering. As a junior professor at the University of Duisburg-Essen and group leader at the German Aerospace Center (DLR) he researches energy materials, with a particular focus on electronic, thermal and atomic transport in thermoelectric materials and devices.

His research combines materials synthesis, advanced chemical and microstructural characterization, transport measurements and modelling to understand how composition and microstructure determine material and device performance. A recent focus is the study of the impact of home- and heterointerfaces and the analysis and mitigation of degradation processes, progressing the application of thermoelectric technology on earth and in space.

J. de Boor collaborates with research groups across Europe, Asia and North America, holds several patents and has published more than 120 scientific papers.

15:00 GMT: 30’ break

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WG2 Workshop (15:30-17:00)

Kornelius Nielsch

Overview of WG2 activities

Professor of Metallic Materials and Metal Physics at Dresden University of Technology

Head of the Institute for Metallic Materials at the Leibniz Institute for Solid State and Materials Research Dresden

Leading SUSTENET WG2

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Arne Stumpf, Matthias Helmich

Cryogenic Thermoelectric Generators for Commercial Vehicle Applications and Beyond

Arne Stumpf

PhD Student at German Aerospace Center (DLR)

Arne Stumpf completed his Master of Science (M.Sc.) degree in Chemical Engineering at Friedrich-Alexander University Erlangen-Nuremberg in 2018. Until 2023, he worked at the Georg Simon Ohm University of Applied Sciences in Nuremberg, where he developed thermoelectric applications for domestic condensing boilers. He has been a member of the advisory board of the DTG (German Thermoelectric Society) since 2022. In 2023, he moved to Stuttgart to join the Department of Alternative Energy Converters at the DLR Institute of Vehicle Concepts, where he continues to develop thermoelectric applications. His work focuses on the field of design and heat transfer.

Matthias Helmich

Dr. Matthias Helmich has been a Research Assistant at the German Aerospace Center Institute for Vehicle Concepts since 2020, focusing on cryogenic thermoelectric generators since 2022. He graduated with a PhD in mechanical engineering, specializing in spark-ignition engine combustion development at Robert Bosch GmbH, following his studies at the Karlsruhe Institute of Technology (KIT).

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Johannes de Boor

Thermoelectric generators for space applications: examples, opportunities and requirements

Institute for Frontier Materials on Earth and in Space German Aerospace Center (DLR); University of Duisburg-Essen

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Kafil Razeeb Mahmood

Micro-thermoelectric cooler for active thermal management of photonic integrated circuits

Kafil M. Razeeb is a Principal Scientist and Group Leader at Tyndall National Institute in University College Cork and Adjunct Professor of Department of Physics at University of Limerick. He received his PhD in Physics from University of Limerick in 2003. He subsequently joined National Microelectronic Research Centre (NMRC), presently known as Tyndall National Institute as a postdoctoral fellow. He became an independent Principal Investigator (PI) in 2005 and commenced developing his core research activities in the application of nanostructured materials in the area of thermal management, thermoelectrics and energy storage. At present, he is leading the Advanced Energy Materials group at Tyndall. He is a Principal Investigator (PI) in Irish Photonic Integration Centre and Funded Investigator of Connect Centre both funded by Research Ireland. He is also coordinator and PI of three successful EU projects and PI/ Co-PI in many national and EU projects. He is a Senior Member of IEEE and Chartered Physicist and Member of Institute of Physics.

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