

United Kingdom Member of ICHMT, AIHTC, EUROTHERM (1) Overview

(Greenwich Mean Time, GMT: UTC, Population: 67 million)

1. Organizations

The Heat Transfer community in the United Kingdom is represented at national level by the **UK National Heat Transfer Committee (UKNHTC: www.uknhtc.org/)** which was established in 1982 as a joint committee of the **Institution of Chemical Engineers (IChemE)** and **Institution of Mechanical and Engineers (IMechE)**. The founding Chair and IChemE representative was the late Professor Geoffrey Hewitt of Imperial College London, while Professor Hugh Simpson of Strathclyde University represented the IMechE at the time. Other professional bodies whose members have an interest in heat transfer include the **Energy Institute**, the **Institute of Refrigeration** and the **Chartered Institution of Building Services Engineers**.

The mission of the UKNHTC is to advance the development and exchange of knowledge in the Heat Transfer field and in particular to:

- Promote excellence in Heat Transfer education, research and practice
- Facilitate the exchange of relevant knowledge in Heat Transfer
- Promote collaboration between industry, universities, government, and professional societies
- Facilitate public understanding of technical issues related to Heat Transfer
- Raise the international profile of the UK Heat Transfer community

2. **Major Meetings** organized or supported by the UK Heat Transfer Committee.

UK National Heat Transfer Conference (UKHTC)

Since 1984, initially held every four years, now every 2 years.

Place: rotated among various universities

Period: two or three days in September

Participants: about 200

Micro and Nano Flow Conference (MNF)

Since 2006, held every 2 years

Period: Normally in September

Participants: about 150

IHTC

Providing support by organizing the refereeing process for papers submitted from the UK and countries allocated by the AIHTC



Joint Academia-Industry Workshop by UKNHTC

Annually held; Period: 1 day in April; Participants: about 100

Example: "Heat Transfer Research, Education and Practice in the UK" 2019 (Series Interrupted due to Covid19).

UKNHTC Seminars (sometimes co-sponsored with Research Centres in Academic Institutions)

Examples for 2021:

- Advances on the Evaporation and Wetting of Drops, Professor Khellil Sefiane, University of Edinburgh
- Opportunities and challenges for additive manufacturing in chemical engineering research, Dr Jonathan McDonough, University of Newcastle

- Increasing the capacity factor of concentrated solar thermal power plants, Professor Kamel Hooman, University of Queensland
- Decarbonized Combustion: Research Needs for Zero Pollution, Professor Yannis Hardalupas, Imperial College London
- Simulating vapour nucleation at nanoscale through diffuse interface modelling, Professor Marco Marengo, University of Brighton
- Carbon Capture & Storage: Current Status of Technology, Dr Salman Masoudi, Brunel University London.

3. Major Journals

Special Issues based on the UK NHTC conferences are organized.

Examples from the most recent conference held in Nottingham are included in *Advances in Heat Transfer and Thermal Engineering* – Proc. of the 16th UK Heat Transfer Conference, Ed C. wen and Y. Yan, Springer, 2021,

<https://doi.org/10.1007/978-981-33-4765-6>.

Journal of Mechanical Engineering Science -Proc. IMechE, Part C (Thermodynamics and Heat Transfer Section).

4. Education (Undergraduate/Graduate School)

The UK education system is worldwide recognized for its teaching and research excellence. Education policy is devolved to the four countries of the UK. The degree structure in England, Wales and Northern Ireland is common, however Scotland traditionally operates with undergraduate degree programmes which are one year longer than those in the remainder of the UK (RUK). Entry to UG degrees in RUK is normally after 13 years of formal education, with A levels being the standard entry qualification, while in Scotland students can enter undergraduate programmes after 12 years of schooling with Scottish Highers being the standard entry qualifications. Universities admit students with a range of other qualifications. Undergraduate bachelor level courses (BA, BSc and BEng) in the RUK are 3 years, and 4 years in Scotland. Several universities offer 4-year undergraduate courses, where the students complete one year in a workplace, usually prior to their final year. In engineering and the sciences professional bodies require an academic qualification at masters level for professional recognition. Many universities offer integrated masters degrees, e.g. MEng, MPhys or MChem which are one year longer than the corresponding bachelors degree. Postgraduate taught (MSc) and research degrees (MPhil, PhD) are also offered in several universities. MSc and MPhil degrees are typically one year long while a PhD is three years. A four years Doctor of Engineering (EngD) degrees are also awarded by UK institutions and hosted by industry.

Heat transfer is taught in a range of undergraduate and postgraduate programmes, typically in Mechanical, Aerospace, Chemical and Building Engineering departments across the UK.

5. University System

There are 164 universities and higher education institutions in the UK, some 50% of these offer engineering degrees. All UK universities are independent institutions with degree awarding powers granted by Royal Charter or Act of Parliament. The titles of the universities and their degrees are legally protected. Funding is from a variety of sources including government grant, student fees, research grants and endowments. The quality of university education throughout the UK (and delivered by UK institutions operating overseas) is monitored and maintained by the UK Quality Assurance Agency for Higher Education (QAA) and all degree courses are assessed against relevant benchmark statements for the subjects. Degrees may also be accredited by appropriate professional institutions. The requirements for accreditation of BEng, MEng and MSc degrees are laid out by the Engineering Council.

6. Foundations of Scientific Research

Research in Heat Transfer and related areas is usually funded by:

- Engineering and Physical Sciences Research Council (EPSRC)
- Royal Academy of Engineering
- Innovate UK
- Industry
- Royal Society
- The European Union (with the UK participating after Brexit)

7. Heat Transfer awards

[Heat Transfer prizes \(uknhtc.org\)](http://www.uknhtc.org)

- Geoffrey Hewitt award for best PhD thesis relating to heat transfer
- David Kenning Award for excellence in research in two-phase (boiling) heat transfer
- UKNHTC undergraduate and postgraduate awards for best thesis (BEng, MEng and MSc) relating to heat transfer

By Professor Tassos Karayiannis (UKNHTC, AIHTC), Professor Khellil Sefiane (UKNHTC, EUROTHERM), Dr. Peter Kew (UKNHTC), Dr. Francesco Coletti (UKNHTC, AIHTC).

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UK National Heat Transfer Conference Announcement

Raya Al-Dadah, Birmingham University (chair), R.K.AL-DADAH@bham.ac.uk

Adriano Sciacovelli Birmingham University (co-chair), a.sciacovelli@bham.ac.uk

Tassos Karayiannis Brunel University London (chair, UKNHTC), tassos.karayiannis@brunel.ac.uk

Francesco Coletti (Secretary, UKNHTC) Brunel University London and Hexxcell Ltd., f.coletti@hexxcell.com



The UK Heat Transfer Conference is the premier forum in the UK for the local and international heat transfer community to meet, disseminate ongoing work and discuss the latest advances in the Heat Transfer field. The 18th edition will be held at the University of Birmingham in September 2024. Join us for keynote lectures delivered by eminent figures from academia and industry, alongside special sessions and presentations on latest development in heat transfer.

The conference themes include: Single phase heat transfer, boiling, evaporation, and condensation, gas turbines, engines and combustion, heat transfer at micro and nano scale, sustainable energy (fuel cells,

solar energy, geothermal energy and energy storage), and many more (see conference themes on website).

The following keynotes have been secured:

- **Professor Ji Hwan Jeong** “Heat Transfer and Fluid Flow Characteristics in Open-Cell Porous Metal Structures”
- **Professor Peter Ireland**, Title: TBC
- **Dr Francesco Coletti**: “Exploring Artificial Intelligence Applications to Heat Transfer: the Good, the Bad, the Hybrid”
- **Professor Hector Iacovides** “Thermal Hydraulics Challenges, in Nuclear Engineering”
- **Professor Mateo Bucci** “Faraway, So Close: High Resolution Investigations of Boiling Heat Transfer, from Cryogenic Fluids to High-Pressure Water”
- **Professor Renato Cotta** “Recent Progresses on Fundamentals and Applications of Computational Integral Transforms in Heat and Fluid Flow”

Special sessions will be organized on:

- The current state and advances in Nuclear Engineering-including aspects of heat transfer. Chaired by Dr Michael Bluck and co-chaired by Dr Robin Kamenicky.
- Current state and advancements in Heat Pipe Devices for Smart Thermal Management of Space and Ground applications. Chaired by Dr Anastasios Georgoulas.
- Heat transfer for Net-zero Energy Production and Energy Storage. Chaired by Dr Adriano Sciacovelli
- Advanced Additive Manufacturing for Thermal Sciences. Chaired by Professor Simone Mancin
- Understanding heat transfer processes in geothermal systems. Chaired by Professor Gioia Falcone and Dr Christopher Brown.

Key Submission Dates:

- Extended abstract submitted: Friday 1st March 2024
- Acceptance or abstract re-submission: Friday 15th March 2024
- Final version of extended abstracts: Friday 4th April 2024 Notification of final acceptance: Monday 25th April 2024

For full programme and further details, please visit: <https://more.bham.ac.uk/ukhtc-2024/>

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Report on the 18th UK Heat Transfer Conference
9-11th September 2024, University of Birmingham
Raya Al-Dadah, Francesco Coletti and Tassos Karayiannis

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Since 1984, The UK Heat Transfer Conference is the premier forum in the UK for the local and international heat transfer community to meet, disseminate ongoing work and discuss the latest advances in the Heat Transfer field.

The 18th UK Heat Transfer Conference was hosted by the University of Birmingham, under the aegis of the UK National Heat Transfer Committee, on 9th-11th September 2024 and was chaired by Dr. Raya AL-Dadah and Co-Chaired by Dr Adriano Sciacovelli.

There were six keynote lectures:

- Professor Ji Hwan Jeong, Busan University, Korea: "Heat transfer and fluid flow in open cell porous metal structures"
- Dr Francesco Coletti, Hexxcell Ltd. and Brunel University London: "Exploring Artificial Intelligence Applications to Heat Transfer: the Good, the Bad, the Hybrid"
- Professor Matteo Bucci, Massachusetts Institute of Technology, USA: "faraway, so close: high resolution investigations of boiling heat transfer, from cryogenics to high-pressure water"
- Professor Renato Cotta, Federal University of Rio de Janeiro: "Recent progresses on fundamentals and applications of computational integral transforms in heat and fluid flow"
- Professor Peter Ireland, University of Oxford: "The thermal journey to zero carbon flight"
- Dr Marilize Everts, University College London: "The basics, beauty and benefits of mixed connective flow "

The scientific programme consisted of more than 140 oral presentations dealing with various aspects of heat transfer, from fundamentals to applications. The conference was well attended by more than 170 candidates from national and international academic institutions and industries.

The conference included a focussed industrial session organised by the UK Heat Transfer Society and several industrial contributions, by CalGavin Limited, TWI Limited, SynchroStor Limited, Graham Hart Limited, SheCanEngineer amongst others.

The conference also included 9 special sessions on the following topics:

- Current state and advances in Nuclear Engineering-including aspects of heat transfer.
- Nuclear Thermal Hydraulics.
- Current state and advancements in Heat Pipe Devices for Smart Thermal Management of Space and Ground applications.
- Heat transfer for Net-zero Energy Production and Energy Storage.
- Latest Advances in Heat Transfer in Sorption Systems.
- Heat Pumps: Enablers of Decarbonization.

The conference received sponsorship by Hexxcell Limited (Platinum sponsor), CalGavin Limited (Platinum sponsor), E J Bowman Limited (Gold sponsor), Graham Hart (Process Technology) Limited (Gold sponsor), SynchroStor Limited (Gold sponsor) and The UK Heat Transfer Society (Gold sponsor).

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1. 19th UK Heat Transfer Conference

Richard Law and Tassos Karayiannis

1. 19th UK Heat Transfer Conference**Dr Richard Law**Local Chair, Newcastle University
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The 19th edition of the UK Heat Transfer Conference will be hosted by Newcastle University in September 2026.

The UK Heat Transfer Conference is organised under the aegis of the UK National Heat Transfer Committee (<https://www.uknhtc.org/>) every two years. It is the premier forum in the UK for the local and international heat transfer community to meet, disseminate ongoing work and discuss the latest advances in the heat transfer field. The conference website can be viewed here <https://conferences.ncl.ac.uk/ukhtc19/>.

The call for abstracts is open until April 20th, 2026. All aspects of heat transfer and applications are relevant and welcomed. The list below is indicative of possible areas.

- Boiling, evaporation and condensation
- Computational heat transfer
- Cooling of high heat flux devices
- Drying
- Energy recovery, heat integration and process industry energy systems
- Enhanced heat transfer
- Environmental heat transfer
- Gas turbines, engines, combustion
- Heat exchangers
- Heat pipes
- Heat pumps and refrigeration
- Heat transfer at micro and nano scale
- Heat transfer in porous media
- Heat transfer technology for sustainable energy
- Multi-phase flow
- Single phase heat transfer
- Thermal energy storage
- Thermal management

The following Special Sessions will focus on applications in topical areas:

- Additive Manufacturing of Heat Transfer Devices - chaired by Dr Jonathan McDonough (Newcastle University)
- AI Applied to Heat Transfer - chaired by Dr Francesco Coletti (Hexxcell and Brunel University London)
- Cooling of Electronic Devices and Electrical Machines - chair TBC.
- Heat Pipes - chaired by Prof Yuying Yan (University of Nottingham)
- Heat Transfer in Chemical Reaction Engineering - chair TBC
- Nuclear Thermal Hydraulics - chaired by Prof Hector Iacovides (University of Manchester)
- Net Zero/Process Industry Decarbonisation - chair TBC
- Thermal Energy Storage - chaired by Prof Yulong Ding (University of Birmingham) and Prof Yasser Mahmoudi Larimi (University of Manchester)

We encourage researchers and industrialist both from the UK and internationally to join us in Newcastle in September 2026

General abstract submissions should be done via the EasyChair portal (see <https://conferences.ncl.ac.uk/ukhtc19/callforabstracts/>). If you would like to contribute to a special session, please reach out to the chair in the first instance (see contact details on website).