

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

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