

## **PREFACE: UK HEAT TRANSFER CONFERENCE 2013**

This special issue contains a collection of papers that were presented at UKHTC 2013, the 13th UK Heat Transfer Conference, which was cohosted by Imperial College London and the Energy Futures Laboratory on behalf of the UK National Heat Transfer Committee. The conference was held on the 2nd and 3rd of September 2013 at Imperial College London, and was returning to Imperial College for the third time in its 29-year history.

The UK Heat Transfer Conference was initially organized every four years, but more recently it has been held every two years in a synchronized manner with the European Thermal Sciences Conference and International Heat Transfer Conference. This series of conferences traces its history back to 1984 in Leeds, where the first UK Heat Transfer Conference was held. Subsequent conferences were held in Glasgow (1988), Birmingham (1992), Manchester (1995), London (1997), Edinburgh (1999), Nottingham (2001), Oxford (2003), Manchester (2005), Edinburgh (2007), London (2009), and Leeds (2011).

Over its history the UK Heat Transfer Conference has remained the premier UK conference for the local and international heat transfer communities to meet, interact, and present their work, providing a forum at which specialists in heat transfer and related fields can present the latest progress, developments, and challenges to their peers and other interested parties. Heat transfer is a critical process in innumerable industrial and commercial processes, and despite decades of high-quality research, many questions remain open, while exciting and highly promising new areas and applications are continuously emerging to challenge the community. Furthermore, with the desire to move to a more sustainable, low-carbon energy future, increasingly greater emphasis is being placed on the provision of and effective use of heat. The organizers decided to reflect this by enlarging the scope of the conference to explicitly include heat as well as heat transfer.

The UK Heat Transfer Conference is generally broad in scope, encompassing heat transfer as it applies to power generation, transportation, and a host of processes and industries. Contributions concerning the fundamentals of heat transfer processes and their applications are welcomed in a broad range of areas, including

phase change heat transfer, combustion, electronics cooling, fuel cells, gas turbines, heat pipes, heat exchangers, nanofluids, phase-change materials, porous media, thermoelectrics, and others. In addition, for the 13th edition of the UK Heat Transfer Conference, the organizers particularly welcomed contributions related to heat transfer in the built environment, heat recovery, solar energy, and energy storage.

Five keynote papers were presented at UKHTC 2013 by a mix of world-renowned experts from academia, industry, and government. Professor Geoffrey Hewitt from Imperial College London delivered the opening lecture on the ongoing challenges in multiphase flow and boiling. The second keynote speaker on the first day of the conference was Dr. Robert Morgan, who delivered a lecture on liquid air energy storage for energy management; he was followed by the head of heat strategy and policy at the UK's Department of Energy and Climate Change (DECC), Mr. David Wagstaff, who spoke to the audience over dinner about the future of heating, offering his unique insight from a policy and government perspective. On the second day of the conference, Professor Renato Cotta delivered a keynote lecture on 200 years of analytical heat transfer toward unified hybrid solutions in heat and fluid flow. The final keynote speaker was Professor Paul Younger, who gave a lecture on renewable heat and binary energy and the contribution of deep geothermal energy.

Beyond the keynote speeches, approximately 100 papers from 24 nations and five continents were presented to about 140 attendees, making this by far the most successful UKHTC in its history to date. The conference comprised three parallel tracks, featuring a total of 24 chaired sessions, and moved away from the original format of a 3-minute talk followed by poster presentations, to formal 20-minute presentation slots which included 3–5 minutes of questions and discussion time at the end.

From the presented papers, approximately 10 were reviewed and recommended by the session chairs for publication in this journal. The selected papers were subsequently amended and expanded, resubmitted, and sent out for review by the heat transfer research community. After being peer reviewed by two independent reviewers and final consideration by the organizers and guest editors, six

high-quality papers were accepted for publication in the present special issue of *Computational Thermal Sciences*.

The organizers of the 13th UK Heat Transfer Conference would like to extend their appreciation to the sponsors that made this event possible: LaVision ([www.lavision.de](http://www.lavision.de)), the UNIHEAT project ([www.uniheat-project.com](http://www.uniheat-project.com)), and Troup Bywaters & Anders ([www.tbanda.co.uk](http://www.tbanda.co.uk)), as well as the following cosponsoring institutions for their enthusiastic support: the Institution of Chemical Engineers, IChemE ([www.icheme.org](http://www.icheme.org)); the Institution of Mechanical Engineers, IMechE ([www.imeche.org](http://www.imeche.org)); the Energy Institute (<https://www.energyinst.org>); the International Centre for Heat and Mass Transfer, ICHMT ([www.ichmt.org](http://www.ichmt.org)); and the Heat Transfer Society ([www.hts.org.uk](http://www.hts.org.uk)).

Finally, the organizers and guest editors are grateful to all who enthusiastically contributed to the conference and to those who have made this special issue of *Com-*

*putational Thermal Sciences* possible. Special thanks are due to the authors of the papers, who worked diligently in meeting the review schedule and responding to the reviewers' comments. As always, the reviewers played an important role in improving the quality of the papers, and we have great appreciation for the thorough, constructive reviews that were received. Feedback from a minimum of two reviewers was used as acceptance criteria. Last but not least, the guest editors would like to warmly thank Professor Graham de Vahl Davis, the editor-in-chief of *Computational Thermal Sciences*, for his encouragement to publish this special section.

In closing, we look forward to re-engaging with our colleagues and friends at the next installment of the UK Heat Transfer Conference series. The upcoming UKHTC 2015 is currently being planned to take place on the 7th and 8th of September 2015 at the University of Edinburgh in Scotland.

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