

Selected papers of the Joint 19th International Heat Pipe Conference and 13th International Heat Pipe Symposium

Sauro Filippeschi^{1*} and Marco Marengo²

- 1 University of Pisa, Department of Energy, Systems, Territory and Constructions Engineering (DESTEC), Pisa, Italy
- 2 University of Brighton, Advanced Engineering Centre, University of Brighton, Brighton, United Kingdom

The Joint 19th IHPC (International Heat Pipe Conference) and the 13th IHPS (International Heat Pipe Symposium) was held at the University of Pisa, June 10th-14th, 2018. The joint conference focuses on topics related to heat pipes, thermosyphons and other two-phase thermal devices. The conference is the most important and attended scientific and networking event in the field of two-phase heat transfer devices worldwide. The 1st International Heat Pipe Symposium was held at Tokyo, Japan, in 1985, and it has been held in staggered years from the IHPC until 2016, when the first joint event has been organized in Jeju Island, South Korea. The conference held at Pisa, has been the second joint event of this important conference and welcomed a large number of scientists and technologists from all over the world.

Two-phase thermal devices perform excellent heat transfer rates with very low thermal differences, they are passive and they can operate on ground and in space environment. They can be applied to the micro heat transfer applications as well as the large size devices. All these technical peculiarities make these devices largely applied to different engineering fields: from the electronic cooling to the thermal control of sensors, battery and other miscellaneous devices from the energy saving in industrial and residential applications to the renewable energy exploitation. Despite their large use, the two phase devices driven physical mechanisms are not totally understood and new kind of device different from the original heat pipes [1] or thermosyphons have been developed and studied. This conference therefore, encourages the exchange of ideas between scientists working on such different engineering topics as evaporation, boiling, condensation, two-phase fluid dynamic in capillary pipes and porous structures and lastly, working on natural fluid circulation. Furthermore, the conference inspires the collaboration among scientists and technologists in order to: provide design tools for heat pipe builders, solve technological issues as the chemical compatibility, the aging and safety, and lastly, optimise the performances of heat pipes and thermosyphon for specific

* Corresponding author: sauro.filippeschi@unipi.it



applications. A total number of 195 persons attended the conference coming from 22 different countries. The permanent International Heat Pipe Committee preliminarily selected 162 abstracts from a total number of 184 works and 141 full papers were submitted to the conference. The most of them (95 papers) have been orally presented, the rest of papers have been discussed in two posters sections.

A selection of the papers dealing with microgravity and space applications have been published in a topical collection of the Journal Microgravity Science and Technology [2], in a special issue of the ASME Journal of Heat Transfer [3] in the Journal Thermal Science and Engineering Progress. All the papers submitted to the conference have been preliminarily reviewed by the International Heat Pipe Committee. After a further review process, in agreement with IOP Conference Serie Policy, a selection of 15 papers is now published. They deal with standard Heat Pipes (5 papers), Pulsating Heat Pipes (2 papers), Loop Heat Pipes and Capillary Pumped Loops (2 papers), Thermosyphons (3 papers), and, finally, 3 papers deal with a generic two-phase thermal device.

We wish to thank the International Heat Pipe Committee and the Local Organizing Committee for their great support and advices.

Guest Editors

Prof. Sauro Filippeschi

Prof. Marco Marengo

References

- [1] Grover G. M., Evaporation and Condensation Device, U.S. Patent N°3,229,759, 1963
- [2] Khandekar S., Savino R., Heat pipe systems for thermal management in space, Topical Collection Microgravity Science and Technology, Springer ISSN: 0938-0108 (Print) 1875-0494 (Online) , 2019
- [3] Bozzoli F., Groll M., Rossetto L., Special Issue: Joint 19th IHPC and 13th IHPS, *J. Heat Transfer*. September 2019, 141(9): 090301. doi: <https://doi.org/10.1115/1.4044493>

International Heat Pipe Committee

Honorary Chairman

Prof. M. Groll, Stuttgart, Germany

Past-Chairman

Prof. Yu. Maydanik, Ekaterinburg, Russia

Chairman

Prof. J. Bonjour, Lyon, France

Members

Prof. A. Akbarzadeh, Melbourne, Australia

Prof. J. H. Boo, Seoul, Korea

Prof. C. A. Busse, Leggiuno, Italy

Prof. S. W. Kang, Taipei, Taiwan

Prof. M. Katsuta, Tokyo, Japan

Prof. S. Khandekar, Kanpur, India

Prof. M. Mantelli, Florianopolis, Brazil

Prof. M. Marengo, Brighton, UK

Prof. J. M. Ochterbeck, Clemson, USA

Prof. K. S. Ong, Kuala Lumpur, Malaysia

Prof. W. Qu, Beijing, China
Prof. P. Stephan, Darmstadt, Germany
Mr. W. Supper, Noordwijk, The Netherlands
Prof. P. Terdtoon, Chiang Mai, Thailand
Prof. L. L. Vasiliev, Minsk, Belarus

Local Organizing Committee

Chair

Prof. Marco Marengo, University of Brighton, UK

Co-chair

Prof. Sauro Filippeschi, University of Pisa, Italy

Members

Dr. Mauro Mameli, University of Pisa, Italy

Prof. Fabio Fantozzi, University of Pisa, Italy

Prof. Paolo Di Marco, University of Pisa, Italy

Prof. Fabio Bozzoli, University of Parma, Italy

Dr. Lucio Araneo, Politecnico of Milan, Italy

Prof. Lucia Rossetto, University of Padova, Italy

Prof. Raffaele Savino, University Federico II Naples, Italy

Dr. Andrea Mariani, Enea, Casaccia, Italy

Dr. Andrea Merlone, Inrim C.N.R., Turin, Italy

Dr. Filomena Iorizzo, Argotec, Turin, Italy

Dr. Marco Molina, Leonardo S.p.A, Italy

Dr. Lorenzo Caporale, AAVID Thermalloy, Italy

Honorary members

Dr. Carlo Bassani, ISPRA, Leggiuno, Italy

Prof. Enrico Maria Latrofa, University of Pisa, Italy

