The joint 18th International Heat Pipe Conference (IHPC) & 12th IHPS (International Heat Pipe Symposium)

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This special issue of *Heat and Mass Transfer* contains 17 articles that originate from presentations at the joint 18th International Heat Pipe Conference and 12th International Heat Pipe Symposium, held in Jeju Island, Republic of Korea, from June 12 to 16, 2016. This conference was organized by the Heat Pipe Committee of the Korean Society of Mechanical Engineers (KSME), under the auspices of a joint international committee gathering together members of the Committee on International Heat Pipe Conferences and the International Advisory Board of the International Heat Pipe Symposium. The joint 18th IHPC and 12th IHPS was supported by Japan Association for Heat Pipe, Jeju Convention and Visitors Bureau, and Korea Tourism Organization. This event was also sponsored by Daehong Enterprise, Co. Ltd., SAMJIN Tech., Korea Institute of Energy Research (KIER), Uniwell, Apack Inc., JNM MECA Tech., and Auras.

Since their beginning, and until the first joint edition in their history, these conferences have taken place once every two or three years, and alternating which each other. As a matter of fact, the IHPS was originally founded by the Japan Association for Heat Pipes (JAHP) in 1985 and has always attracted many players of the Asian and Pacific rim where it has always been localized, while the IHPC was held

throughout the world. Organizing both event the same year in Republic of Korea was a unique and vibrant occasion to bring together all the researchers, R&D engineers, scientists, technicians, interested in the development or application of heat pipes.

To build the present special issue of *Heat and Mass Transfer*, the communications were first selected by the international committee after the proposal of the session chairpersons. The authors were proposed to extend their papers that were then submitted to the usual peer-review process of the journal, which included at least two independent reviewers. These articles are thus certainly an excellent sample of the main topics presented through the 4 keynote lectures, 16 oral sessions, and 4 poster sessions of the Conference.

The efficiency of heat pipes as heat transfer devices has been recognized for years, for their capability to transport high heat fluxes under low temperature gradients, which is made possible owing to liquid-vapor phase-change heat transfer phenomena. Since their early development for space application to their intensive use for thermal management of electronics, heat pipes have thus spread in many industrial fields. However, the race to ever-increasing performance continues, which requires basic research on phase-change heat transfer and associated thermo-hydraulics, on wall-fluid interaction. It also calls for technological innovation and creativity, for laboratory and real-field tests.

For these reasons, we describe the contents of the present special issue as follows:

This issue includes some fundamentals studies of thermofluid science related to heat pipes (Bertossi et al.; Srinivasan et al.) and their application to the geometric features of the capillary structures (porous material: Florez Mera et al.; full micro-heat pipe: Jung et al.). This issue also includes efforts to reach optimal or innovative design of heat pipes and to analyze their performance (wall

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modification in oscillating heat pipes: Qu et al.; Leu & Wu; under size constraints: Wits & te Riele).

Heat pipes are to be used in a variety of contexts and application: aerospace still drives innovation (high temperature heat pipes for atmospheric reentry vehicles and hypersonic cruise vehicles: Lu et al.; cryogenic heat pipes for infrared sensors and detectors: He et al.) and electronic cooling continues to always require larger heat fluxes (electronic components: Ahamed et al.; LED: Lv et al.). But interestingly, heat pipes now also often appear as a useful link in the chain of energy efficiency (Jadhav & Lele; Chi et al.; Ebeling et al.; Li et al.; Joo & Kwak; Lee et al.).

As the Guest Editors of this special issue of *Heat and Mass Transfer*, we would like to thank the journal publication and production team and its editor-in-chief, Prof. Andrea LUKE,

for providing the opportunity to publish this special issue with selected papers from the joint 18th IHPC and 12th IHPS. We also wish to express our gratitude to the reviewers of these papers for the quality of their reviews, and the authors for the efforts they made to fit with the requirements of the Journal and the recommendations of the reviewers.

To conclude, we would like to recall that the next major international event in the field of heat pipes will be the second joint IHPC & IHPS. It will be Chaired by Prof. Marco MARENGO (Brighton University, UK) and Prof. Sauro FILIPPESCHI (Univ. of Pisa, Italy) and held in June 2018 in Pisa, Italy. This edition will be known as the joint 19th IHPC and 13th IHPS: we make the wish that it will be as successful as the first joint IHPC & IHPS in the history!