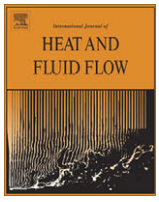
International Journal of Heat and Fluid Flow 30 (2009) 813

Contents lists available at ScienceDirect

International Journal of Heat and Fluid Flow

journal homepage: www.elsevier.com/locate/ijhff



Preface

The Third International Conference on Heat Transfer and Fluid Flow in Microscale (HTFFM-III), organized by G.P. Celata (Chair), K.S. Breuer, N. Kasagi, M. Kawaji, and J.R. Thome and coordinated by Engineering Conferences International, was held at Whistler, British Columbia, Canada during September 21–26, 2008. A total of 65 participants attended the Conference and about 47 papers were presented in the oral plenary sessions in addition to seven keynote lectures. The papers covered single-phase fluid flow and heat transfer, adiabatic two-phase flow, flow boiling, phase change, condensation, heat exchangers, measurement techniques, nanofluids, and microfluidic systems, all of which are of current scientific and technological interest.

This Conference followed a similar conference organized by ENEA and ECI in Castelvecchio Pascoli (Barga, Lucca), 2005, and so a comment can be made on the progress since that time. Advances in measurement techniques, particularly in the precision with which flow rates and pressures can be assessed, the ability to conduct *in situ* measurements at the microscale, and the ubiquity of high-speed, high-resolution digital imaging, have allowed for much more detailed measurements of micro fluid phenomena than was possible, just three years ago. In addition, the progress over the past three years in theoretical and numerical modeling has moved the field from largely empirical correlations towards more quantitative and more rigorous physics-based assessments of the complex phenomena that are observed. Single phase flows are largely understood (although still hold some surprises), while multi-phase flows, while still difficult to accurately model are much more amenable to prediction than was possible just a few years ago.

This issue of IJHFF contains fully refereed and revised versions of seven papers selected from the Conference, thus providing the reader with a flavor of the topics such as flow transition and friction characteristics, two-phase flow instability, liquid film measurement, conjugate heat transfer, and unique fractal-like microchannel heat sink.

We wish to thank all participants for making HTFFM-III very successful in progressing the state-of-the-art in heat transfer and fluid flow in microscale.

Editor-in-Chief
Nobuhide Kasagi

Guest Editor
Kenneth S. Breuer

Editor-at-Large
Frank W. Schmidt

Available online 22 July 2009

doi:10.1016/j.ijheatfluidflow.2009.07.001