PREFACE: 14TH BRAZILIAN CONGRESS OF THERMAL SCIENCES AND ENGINEERING (ENCIT 2012)

In this special issue you will find selected papers that were presented at the 14th Brazilian Congress of Thermal Sciences and Engineering (ENCIT), held at the Windsor Hotel in front of the Copacabana Beach in Rio de Janeiro, Brazil, during November 18–22, 2012. A cosmopolitan metropolis, known worldwide for its scenic beauty and its natural resources, Rio de Janeiro provides a harmonious and agreeable environment for its inhabitants and visitors. Known as the Wonderful City, it hosted several games during the 2014 Fédération Internationale de Football Association World Cup, including the final game at the historic Stadium of Maracanã, and it will host the 2016 Summer Olympic Games. Hence, it was a logical choice to host the 14^{th} ENCIT, which was organized by the Mechanical Engineering Program at Universidade Federal Fluminense, under the auspices of the Brazilian Society of Mechanical Sciences and Engineering (ABCM). ENCIT has been held every even year since 1986 and its last editions have included more than 400 presentations of peer-reviewed papers. The ENCIT series of conferences has successfully served as the major forum for the interaction of professionals from academia, industry, and government within the heat transfer, thermodynamics, and fluid mechanics communities in Brazil.

This issue includes applied and fundamental research works in the form of seven research papers. The first paper deals with the solution to magnetohydrodynamic flow in a tilted cavity using radial basis functions, while the second paper presents a numerical study of forced convection around a row of cylinders. An analytical study of heat source–induced closure of penny-shaped cracks is presented in the third paper. The fourth paper focuses on hybrid numerical/analytical solutions via partial integral transformation to a class of convection/diffusion problems. The fifth and sixth papers include numerical analyses of a submerged plate wave energy converter and a simulation of a flat plate boundary layer using a vortex method, respectively. Finally, the seventh paper presents a reduced chemical reaction mechanism for analyzing the combustion of hydrogen and methane in computational fluid dynamics (CFD) software. We hope that you find the papers herein interesting and useful for your research.

The next major ABCM event to be held in Rio de Janeiro will be the 23rd International Congress of Mechanical Engineering (COBEM), during December 6–11, 2015. It is the largest ABCM conference, which included more than 1000 participants in its last inceptions. We recommend attending the 23rd edition of COBEM in Rio de Janeiro, when the city will be gearing up toward Olympic fever.

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