Preface

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Biographical notes: Dia Zeidan is currently an Associate Professor in the School of Basic Sciences and Humanities at the German Jordanian University, Amman, Jordan. His expertise is in the mathematical modelling and numerical simulations of multiphase fluid flow problems. His recent work also includes hyperbolicity and conservativity resolution related to two-phase flows equations in the context of the Riemann problem and simulations of such flows over a wide range of non-equilibrium behaviours.

M. Ziad Saghir is a Professor in the Department of Mechanical and Industrial Engineering at the Ryerson University in Toronto, Canada. He is the Founder of the International Conference on Thermal Engineering series (ICTEA). His goal from organising this conference is to create a scientific bridge of knowledge between MENA region and Europe and North America. He has over 180 journal publication and will continue to organise this conference every year.

Sergei Sazhin is a Professor of Thermal Physics at the University of Brighton, UK. He completed his PhD in Physics and Mathematics at the St. Petersburg State University, Russia in 1977; has been a Fellow of the Institute of Physics, a Chartered Physicist and Research Worker at the Institute of Physics, St. Petersburg State University, Russia (1972–1982), a Research Fellow at the Department of Physics, Sheffield University, UK (1988–1992) and a Research Scientist at the Fluent Europe Ltd., Computational Fluid Dynamics Software and Consultancy Services, Sheffield, UK (1992–1996). Since 1996, he has been researching the modelling of fluid dynamics, heat transfer and combustion processes in sprays in internal combustion engines at the University of Brighton.

Marwan Darwish is affiliated with the Department of Mechanical Engineering, the American University of Beirut in Lebanon. His research interest is in computational fluid dynamics. He has over 20 years of research experience in computational techniques and numerics development for fluid flow and heat transfer problems with a particular focus on high resolution schemes and advanced algorithms for single and multi-phase flows. He has authored and co-authored more than 80 publications in peer-reviewed journals and referred conference proceedings. Recently, he contributed to the publication of the new textbook *The Finite Volume Method in Computational Fluid Dynamics*.

This special issue consists of a selection of papers representative of the *Eighth International Conference on Thermal Engineering Theory and Applications – ICTEA 2015*, held in Amman, Jordan, 18–21 May, 2015, organised jointly by Dia Zeidan (the German Jordanian University) and M. Ziad Saghir (Ryerson University).

ICTEA is an annual series of conferences, started in 2004, on thermal engineering theory and applications and associated themes. The conference aim is to serve as a much-needed comprehensive professional resource to encourage scientists and engineers in the Middle East, including the Gulf region and North Africa, in building research capabilities in their institutions of higher learning with other international academic and research centres across the world.

Conference Chairpersons, Dia Zeidan of the German Jordanian University, School of Basic Sciences and Humanities, and M. Ziad Saghir of Ryerson University, Department of Mechanical and Industrial Engineering, are gratefully acknowledged for a grand and ideal organisation, as well as through editing of the book of proceedings following a very successful conference. The final conference program included of five keynote lectures given by distinguished computational engineering and sciences experts, who presented an enormous deal of valuable knowledge and thrilling subjects for discussions and more than a hundred technical presentations.

Accepted papers, presented during the conference, were invited to submit a full lengthy paper in a call to a special issue of the *International Journal of Engineering Systems Modelling and Simulation* (Inderscience publishers). Five of the 30 papers submitted to IJESMS were accepted.

The guest editors and ICTEA Conference series look forward to that this special issue will help to promote research and academic exchange between different countries with an interesting sight into recent development in thermal engineering theory and applications and related themes. They also would like to express their appreciation to the *International Journal of Engineering Systems Modelling and Simulation* editorial board for the opportunity to publish this special issue with selected papers presented at the Eighth International Conference on Thermal Engineering Theory and Applications – ICTEA 2015. They sincerely appreciate the anonymous reviewers who facilitated a thorough review process and produced useful comments to improve the accepted papers. They are also very grateful to the colleagues who kindly accepted our invitation. Finally, they are deeply grateful to the Editor-in-Chief Professor Xiaogang Yang of the *International Journal of Engineering Systems Modelling and Simulation*, who supported the publication of this special issue and helped to ensure that the issue will be fulfilled successfully. They also thank the sponsors of ICTEA 2015, namely the German Jordanian University (Jordan), Ryerson University (Canada) and Inderscience Publishers (UK).