Preface

Fluid flow, thermodynamics and heat/mass transfer are nowadays central pillars of science and technology. They have been central to the development of our civilization because we use them not only to understand natural-world phenomena but also to achieve incremental improvements in technology. However, some long-standing fundamental problems still remain unsolved while current developments are giving rise to many more of them. Therefore, advances in the understanding of fluid flow, thermodynamics and heat/mass transfer continue to be crucial in science as well as in almost all fields of engineering. They are usually part of applied mathematics, physics and engineering research, and can be involved in astrophysics, meteorology, geophysics, oceanography, biology, and many more, including the traditional branches of engineering (mechanical, civil and chemical engineering) and new fields such as bioengineering or nanotechnology. Consequently, the tendency to become compartmentalized into subjects with different groups may lead to particular advancements being known only inside each area.

The special session “Fluid Flow, Energy Transfer and Design” held at the 10th International Conference on Diffusion in Solids and Liquids (DSL 2014) sheltered papers of different areas ranging from physics, mathematics and chemistry to engineering and provided several contributions for this topical volume. Other experts in the field of heat and mass transfer were as well invited to contribute to this volume.

Antonio F. Miguel
Luiz Rocha
Andreas Öchsner