Preface

The special issue entitled "Transfer Phenomena in Fluid and Heat Flows XIV" of the Defect and Diffusion Forum continues a series of themed volumes. It presents a collection of articles associated with heat transfer and fluid flow phenomena. These topics can be understood in the broader sense as classical diffusion-related topics. The continuous need for improved machines, higher efficiencies, and more detailed and accurate theoretical modeling approaches makes it necessary to showcase the latest trends regularly with small intervals between the different volumes in this topical series.

This issue addresses several exciting topics. It starts with the study of Atmospheric Dispersion Modeling using a Stochastic Wind Model to account for the wind flow field and advances to the analysis of an atmospheric dispersion of ammonia gas (NH3) caused by a hypothetical leak in a tanker truck due to an accident during its transport.

The study of Earth-Air Heat Exchangers follows evaluating the influence of incorporating the thermal energy storage principle based on phase change materials (PCM) into the EAHE, as well as applying a galvanized block to increase its thermal potential.

Several articles rely on fluid mechanics modeling. For example, the analysis of fluid-structure interaction with cable coupling, a landscape evolution model based on physical processes, the application of the Constructal Theory for building empty channels inserted in a porous domain, and the simulation of a prototype of individual portable air purifiers.

Heat transfer modeling is also an important content of this volume. The modeling of energy transport via radiative transfer and the thermal and cooling analysis for a two-unit rack server are presented with significant results. Heat transfer in a silo containing rice and a heat transfer on storage bins for one year are also significant contributions of this collection. An analysis of uncertainties applied to a bioheat transfer problem containing a deep brain stimulation lead and a numerical study of the influence of the geometric parameter of a radial crystalizer complete the heat transfer body of work.

Analysis of multiobjective optimization scenarios in estimating the adjustable parameters and the performance of temperature functions for a generalized cubic equation of state is also explored with special attention in this volume.

Works in sea wave and its application is also addressed. Modeling the oscillating water column is largely investigated, e.g., its performance when integrated with three types of harbor protection structures or considering a Savonius turbine. Investigation of numerical irregular wave generation using transient discrete data as boundary conditions of prescribed velocity implementation and validation of the SAFEPORT system at the Sines harbour finish the themes of this volume.

Finally, I thank the authors and reviewers for all the hard work that made this topical volume in Defect and Diffusion Forum again possible.