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Numerical Simulation of Convective-Radiative Heat Transfer

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Message from the Guest Editor

Dear colleagues,

Heat transfer is the main transport process for various engineering and natural systems. At the same time, the development of modern engineering apparatus and natural bio- and geo-systems is related to a deep understanding of the processes that have progressed in these systems. Convective and radiative heat transfer mechanisms are the dominant modes in the considered systems. Therefore, an in-depth study of these regimes is very important and useful for both the growth of industry and the preservation of natural resources. There are three main methods for an investigation of the considered heat transfer mechanisms. They are theoretical methods, experimental methods, and computational approaches. Theoretical methods are related, generally, to an analytical description of thermal processes using the laws of conservation of mass, momentum, angular momentum, and energy, while experimental analysis deals with an investigation of heat transfer processes using experimental techniques and measurements.

The development of computer engineering allows one to use the plentiful opportunities of numerical simulation to obtain a description and an understanding of heat transfer processes. Such an approach includes the advantages of theoretical methods in which analysis can be performed in a wide range of all governing parameters and the advantages of experimental methods where the deep investigation is possible. Therefore, numerical simulation of convective and radiative heat transfer is a very useful and important topic for different fields of industry and various natural systems.

The present Special Issue will focus on the simulation of convective and radiative heat transfer in engineering systems and natural bio- and geo-systems. It is a very good opportunity to combine original manuscripts on the considered topic to present useful guidelines for future research.



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Special Issue



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Message from the Editor-in-Chief

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