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Modelling and Optimization of Chemical Reactors

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Message from the Guest Editors

The development of accurate models describing reaction and separation processes is an essential component of chemical engineering. The modelling of chemical reactors entails the description of mass, momentum, and energy transport equations, often at the same time. In addition, reactors with complex geometrical configurations are increasingly being applied in the fields, for instance, of thermochemical cycles and micro reactors.

The challenge related to the modelling of reacting systems is represented mainly by the need to obtain an accurate description, while avoiding an unnecessarily high degree of complexity. The increasing ease of solutions of complex systems of equations through sophisticated CFD modelling software, along with powerful computers, has led to a tendency to develop very complete descriptions of reactors, regardless of the utility of this approach.

The scope of this Special Issue is to present insightful models of chemical reactors and proposed procedures for their optimization. The models may describe the chemical or biological reactors of any scale.

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Message from the Editor-in-Chief

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