



Modeling and Optimization of Gas-Solid Reaction Vessels

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Message from the Guest Editors

Gas–solid reaction vessels (e.g., fluidized beds, fixed beds, moving beds, etc.) are widely used in many industrial areas, such as chemical engineering, power engineering, or metallurgy. Reactor modeling, a powerful tool for understanding the performance of the process via simulating operating conditions outside the experimentally tested ranges, has increasingly developed into an irreplaceable part of the design, scale-up, and optimization of different reaction systems. Recently, modeling reaction vessels with sophisticated geometrical configurations and complex chemical reaction systems are also becoming feasible with the development of numerical methodologies and computational facilities. This Special Issue of Processes, “Modeling and Optimization of Gas-Solid Reaction Vessels” aims to present the latest achievements in modeling associated with various gas–solid reaction vessels. Modeling topics include but are not limited to hydrodynamics, heat and mass transfer, looping processes, energy conversion and storage, combustion and gasification, pollution control, CO₂ capture, and other technologies associated with the gas–solid reaction vessels.





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Message from the Editor-in-Chief

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