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Microwave Applications in Chemistry and Industry

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Message from the Guest Editors

Microwave heating exploits the interaction between electromagnetic waves and materials to convert microwave energy into heat. Microwaves are expected to become increasingly popular, with the development of new microwave technologies solving many problems in the future, particularly in energy-intensive industrial sectors, to replace conventional heating.

The industrialization of microwave heating depends heavily on the control of two main weak points of this technology, namely the presence of hot spots, and the risk of thermal runaway. Solving these problems creates the need for (i) a better understanding of the mechanisms of interaction between electromagnetic waves and the media under treatment; (ii) the development and manufacture of dedicated equipment; (iii) the study of the electromagnetic properties of new materials. The popularization of multi-physics simulation tools, progress in the development of microwave and radio frequency equipments, and the appearance of new materials all contribute to innovative solutions for microwave power applications at both the laboratory scale and industry scale.

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Message from the Editor-in-Chief

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