catalysts

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In-Depth Study of Electrochemical Reduction Catalysts and Promoters toward Green and Sustainable Processes

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Message from the Guest Editors

The energy crisis that we are witnessing today and the growing number of related environmental problems indicate the need to explore more sustainable energy sources that can reduce our great dependence on fossil-based fuels. The challenges we face in regard to energy storage and production and utilization approaches require that we develop alternative and sustainable routes, of which one of the most promising alternatives, in terms of sustainability and the possibility of controlled environmental impact, may be electrochemistry/electrocatalysis.

Different electrocatalytic processes could be used to target the above-mentioned challenges, i.e., the oxygen reduction reaction (ORR), carbon dioxide reduction reaction (CO_2RR), and nitrogen reduction reaction (NRR). The benefit of these processes is described by the concept of "value added output", achieved through the production of energy or energy vectors, as well as fuels and industrially useful building blocks.

The aim of this Special Issue is to investigate the latest approaches to the design, development, and characterization of high-efficiency electrocatalysts for ORR, CO_2RR, and NRR electrocatalysis.