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Catalytic Applications of CeO2-Based Materials

Guest Editor:

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Message from the Guest Editor

Dear Colleagues,

Over the past several years, cerium oxide and CeO_2-containing materials have come under intense investigation as catalysts and as structural and electronic promoters of heterogeneous catalytic reactions. Apart from well-established uses in three-way catalysts (TWCs), CeO_2 is emerging as a catalyst component for a wide range of catalytic applications: Reforming of hydrocarbons and oxygenates, CO oxidation and preferential CO oxidation in the presence of H_2 (PROX), water–gas shift (WGS), conversion of syngas to alcohols, C–C coupling, aldol condensations, partial oxidation, solar-driven thermochemical CO_2 reduction, CO_2 conversion to fuels and chemicals and clean energy production with solid oxide fuel cells. This Special Issue is intended to cover the most recent progress in catalytic applications of CeO_2-based materials from synthesis and characterization to the evaluation of activity in order to gain insights towards the development and the utilization of one of the most important industrial and environmental constituent in a wide range of catalytic systems.

Dr. Antonio Vita
Guest Editor