

Special Issue

Cerium Oxides – Properties, Preparation and Applications

Message from the Guest Editor

Cerium is the most abundant element of the rare Earth group and is one of the most abundant metals on the Earth's crust. In nature, it is found in combination with other elements; however, it is easily extracted as oxide. Cerium (III) oxide (Ce_2O_3) is not stable and readily oxidizes to cerium (IV) oxide (CeO_2). Cerium (IV) oxide is usually obtained by calcination of oxalate. The unique chemical-physical characteristics, the mechanical properties, and the low cost make CeO_2 an attractive material for several applications, including catalysis, glass technology, sensors, pigments and cosmetics, radioprotection, metal and steel protection, and energy, as well as in toxicology and as electrolytes. In this Special Issue, short communications, full papers, and review articles are welcome on innovative synthesis methods and characterization of cerium oxide materials, and on the latest applications in the previously listed chemical, industrial, and technological fields.

Guest Editor

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Metallic materials play a vital role in the economic life of modern societies; contributions are sought on fresh developments that enhance our understanding of the fundamental aspects related to the relationships between processing, properties and microstructure – disciplines in the metallurgical field ranging from processing, mechanical behavior, phase transitions and microstructural evolution, nanostructures, as well as unique metallic properties – inspire general and scholarly interest among the scientific community.

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