catalysts

an Open Access Journal by MDPI

IMPACT FACTOR 4.0

CITESCORE 7.6

Advances in Cerium-Based Material in Catalysis

Guest Editor:

Prof. Dr. Giuseppe Pantaleo
Istituto per lo Studio dei Materiali Nanostrutturati (ISMN-CNR), Via Ugo La Malfa 153, 90146 Palermo, Italy

Deadline for manuscript submissions:
closed (15 October 2023)

Message from the Guest Editor

The use of cerium-oxide-based material as catalysts has played an increasingly important role over the years, especially in the field of environmental catalysis. Cerium oxide nanoparticles due to the self-regeneration of their surface, which is based on the easy changing during redox cycling between 3^+ and 4^+, was largely employed in catalytic converters for emissions control from engine vehicles. In addition, cerium oxide exhibits antioxidant properties both in vitro and in vivo and is then used in biomedical applications to treat diseases that are characterized by higher levels of reactive oxygen. Many synthesis procedures are reported in the literature, and cerium nanoparticles have been deposited in many different supports, such as silica, alumina, or titania. Nevertheless, due to the importance of cerium nanoparticles, the research effort must continue. This Special Issue has the goal to stimulate the research community to share the last findings in cerium-based materials, pointing out synthesis procedures, characterization, and activity, taking also into account the environmentally friendly impact of its use.