Special Issue

Ceria-Based Catalysts, 2nd Edition

Message from the Guest Editors

Cerium oxide plays a key role as an active support and as a catalyst in the relevant environmental applications and energy conversion systems. Additionally, its unique ability to shuttle between the Ce(III) and Ce(IV) oxidation states, hence its oxygen storage capacity (OSC), is particularly valuable in photocatalysis, where cerium-based materials can act as oxygen buffers, promoting oxidative activities. Thus, the development of advanced ceria-based catalysts has become a hot topic of ongoing research, including several applications spanning from advanced gas purification to fuel cells. Special attention has been paid to the synthesis of advanced ceria nanostructures (i.e., nanoparticles, 1D, 2D, 3D or core–shell materials) and to the relationship between structure and catalytic activity.

This Special Issue aims to highlight recent advances in the synthesis, characterization and catalytic/photocatalytic applications of cerium-containing catalysts, going beyond the state-of-the art. Researchers are encouraged to submit their most recent advances on this topic.

Guest Editors

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Deadline for manuscript submissions

closed (28 July 2025)

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