Special Issue

Surface and Interface Engineering of Metal Oxides: From Atomic-Scale Design to Applications in Catalysis, Energy and Electronics

Message from the Guest Editors

Metal oxides are pivotal in advancing technologies across catalysis, energy conversion/storage, and semiconductor devices, where their surface and interfacial properties dictate performance. This Special Issue focuses on innovative strategies to engineer metal oxide surfaces and interfaces at atomic or nanoscale precision, aiming to bridge fundamental discoveries with industrial applications. Key themes include the following:

Precision synthesis and modulation of surface/interface architectures through techniques such as atomic layer deposition, plasma etching, and solvent-directed crystallization.

Advanced characterization using in-situ/operando methods to probe dynamic interfacial processes, molecular adsorption/desorption, and charge transfer mechanisms.

Theoretical and computational models to predict interfacial electronic structures, lattice strain effects, and reaction pathways for catalytic cycles.

Structure-performance relationships in energy-dense applications, including perovskite solar cells, solid-state batteries, and gas sensors.

Guest Editors

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Deadline for manuscript submissions

closed (10 November 2025)

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Message from the Editor-in-Chief

Welcome to *Crystals*, the journal dedicated to the fascinating world of crystallographic research! Crystals are more than mere decorative elements; they hold the key to understanding the fundamental structure of matter. Our mission is to explore the crucial significance of this research across various fields. From medicine to technology, chemistry to geology, crystals play a vital role. Their structure provides insights into new advanced materials, innovative drugs, and groundbreaking technologies. Through *Crystals*, we delve into the microscopic world to discover solutions that will shape the future. Join us on a journey through the *Crystals*, where science merges with beauty and innovation.

Editor-in-Chief

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