Special Issue

Photocatalytic Materials: New Perspectives and Challenges

Message from the Guest Editors

Photocatalysis is a green and sustainable technology that can directly convert renewable solar energy into chemical energy, holding the potential to effectively tackle the economic and environmental challenges associated with fossil fuels. By utilizing solar energy as a driving force, exciting photocatalysts generate photocarrier charges, triggering various reactions, including water splitting, carbon dioxide reduction, ammonia synthesis, biomass conversion, cancer treatment, self-cleaning, and pollutant degradation. Among these, photocatalysts play a crucial role in the conversion of light energy, directly impacting the thermodynamic trends and kinetic efficiency of catalysis. Various methods such as morphological engineering, heterojunction structures, bandgap modulation, element doping, and crystal facet control have proven effective in enhancing the catalytic performance of photocatalytic materials. However, the development of low-cost, highly active, and long-lasting photocatalytic materials remains a significant challenge. New mechanisms, processes, and novel discoveries involved in the photocatalytic reaction process continue to warrant widespread attention.

Guest Editors

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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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