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Recent Advances in Silica-Based Nanomaterials for Energy and Environmental Applications

Guest Editor:

Prof. Dr. Sungwook Chung

School of Chemical and
Biomolecular Engineering, Pusan
National University, 2
Busandaehak-ro 63beon-gil,
Geumjung-gu, Busan 46241,
Republic of Korea

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Message from the Guest Editor

Silica and silica-based composite nanomaterials are an important class of functional materials that have been widely employed. Exploiting nature's principles of silica biomimicry via advanced characterization techniques has led to unprecedented insights into the mechanisms and capabilities in the design and development of novel synthetic methods. Predictive capabilities provided by new approaches to modeling have, in turn, served as a guide for improving synthesis. These insights afforded by the experimental and modeling efforts have led to the realization of these materials for energy storage and harvesting, optoelectronics, sensing, functional membrane, catalytic, biomedical, environmental, and biotechnological applications.

This Special Issue will address recent advances in this field and cover the wide range of research into silica and silica-based composite nanomaterials, from the fundamentals to potential applications.

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Prof. Dr. Alessandra Toncelli

Department of Physics, University
of Pisa, 56126 Pisa, Italy

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.

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Crystals Editorial Office
MDPI, Grosspeteranlage 5
4052 Basel, Switzerland

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