Special Issue

Nanomaterials in CO_2 Capture

Message from the Guest Editors

Decarbonizing the global energy supply is a central challenge if the world is to achieve significant CO2 emission reductions necessary to avoid the dangers of climate change. Carbon capture and sequestration (CCS) has been entrusted with about 20% of the reduction in anthropogenic CO2 emission. CO2 capture is essential for CCS, however, most of the current capture technologies are still on their way to commercialization. Nano-scale tuning of sorbent materials has been regarded as an approachable way to enhance the efficiency and cost effectiveness of CO2 capture processes. The topics that would be covered in this Special Issue include, but are not limited to, nanomaterials (e.g., Calcium based; Magnesium based; Alkali zirconate; Alkali silicate; Hydrotalcite; MOFs; Carbon materials; Solid amine-based; Graphite/graphene-based; Zeolite-based; Silica-based; Polymer-based; Alkali metal carbonate-based; waste derived). Articles focusing on the environmental aspects related to nanomaterials, carbon capture or life cycle analysis will also be welcome.

Guest Editors

Prof. Dr. Prashant Kumar

Global Center for Clean Air Research (GCARE), School of Sustainability, Civil and Environmental Engineering, Faculty of Engineering and Physical Sciences, University of Surrey, Surrey GU2 7XH, UK

Dr. Ming Zhao

Division of Solid Waste Management, School of Environment, Tsinghua University, Beijing 100084, China

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Editorial Office
MDPI, Grosspeteranlage 5
4052 Basel, Switzerland
Tel: +41 61 683 77 34
nanomaterials@mdpi.com

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Nanoscience and nanotechnology are exciting fields of research and development, with wide applications to electronic, optical, and magnetic devices, biology, medicine, energy, and defense. At the heart of these fields are the synthesis, characterization, modeling, and applications of new materials with lower nanometer-scale dimensions, which we call “nanomaterials”. These materials can exhibit unusual mesoscopic properties and include nanoparticles, coatings and thin films, metal–organic frameworks, membranes, nano-alloys, quantum dots, self-assemblies, 2D materials such as graphene, and nanotubes. Our journal, *Nanomaterials*, has the goal of publishing the highest quality papers on all aspects of nanomaterial science to an interdisciplinary scientific audience. All of our articles are published with rigorous refereeing and open access. We are proud of our increasing impact factor and ability to provide rapid decisions to authors.

Editor-in-Chief

Prof. Dr. Eugenia Valsami-Jones
School of Geography, Earth and Environmental Science, University of Birmingham, Birmingham B15 2TT, UK

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