Special Issue

Functional Nanomaterials for Photoelectrochemical Water Splitting

Message from the Guest Editor

Photoelectrochemical water splitting has emerged as a transformative approach for sustainable hydrogen production, addressing the growing global demand for clean energy sources. Nanomaterials are key factors for enhancing the overall efficiency of photoelectrochemical water splitting because they enable efficient light absorption, rapid charge separation and effective catalytic capability. Semiconduction nanomaterials, such as metal oxides and sulfides, have tunable electronic structures that facilitate light absorption across a broad spectrum. Additionally, nanostructuring provides a high surface area for water reduction/oxidation reactions and promotes efficient charge transport. By coupling these nanomaterials with co-catalysts, the kinetics of the hydrogen and oxygen evolution reactions can be significantly improved. The present Special Issue of *Nanomaterials* is aimed at presenting the current state of the art in functional nanomaterials for photoelectrochemical water splitting. Original research papers and comprehensive reviews are welcome for submission.

Guest Editor

Dr. Min-Kyu Son
Korea Institute of Ceramic Engineering & Technology (KICET), Jinju, Republic of Korea

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

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Message from the Editor-in-Chief

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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