



Photocatalysis: Activity of Nanomaterials

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Message from the Guest Editors

Photocatalytic processes have shown great potential as a low-cost, green-chemical, and sustainable technology able to address energy and environmental issues. Nanosized materials, with their superior features, including structural, optical, as well as size-tunable electronic properties, can endow remarkable catalytic performance and even novel functionalities. This has expanded the photocatalysis frontier from H₂ production and environmental remediation toward novel applications such as photoelectric sensing and photodynamic therapy. Notably, comprehension of processing–structure–property relationships in functional photoactive nanomaterials has been unveiling mechanistic pathways underlying the photocatalytic process. Understanding the nanoscale will drive design and synthesis strategy to tailor photocatalytic and/or optical properties of nanostructured materials, including coupled, capped, sensitized, and organic–inorganic nanocomposite semiconductor systems.

