International Journal of Photoenergy

Special Issue on

Shape Tailored Semiconductors and Metal Nanostructures for Photocatalytic Applications

CALL FOR PAPERS

In the field of catalysis and photocatalysis, which is a viable alternative for water and air purification, the shape-tuning of the used semiconductor and metal micro-/nanocrystals is a potent tool to manipulate the activity of the catalysts. This can be done by directed growth of crystals with exposed crystallographic planes which favors the desired photocatalytic reaction (degradation of organic pollutants, photocatalytic generation, bacterial disinfection, synthetic chemistry through photocatalysis, etc.). The knowledge concerning the growth of these crystals and the relationship between the activity, structure, and morphology is relatively vast, although there are several large knowledge-voids which should be covered. Nevertheless, the abovementioned issues are the "cornerstone" of photocatalysis based research activities; thus, an in-deep understanding of the associated phenomenology is also required.

Therefore, we would like to invite scientific contributions in the form of research and review papers which are focusing on the different areas of shape-tailored photocatalysis, including the synthesis pathways which are leading to shape tailored materials, the tuning of the selectivity of a given catalyst by changing the ratio of the crystallographic planes or the relationship between the shown photocatalytic efficiencies, and structural changes occurring through the shape-tailored synthesis of the semiconductor or metal nanostructures.

Potential topics include, but are not limited to:

- Strategies to obtain shape-tailored semiconductors and (noble) metals: the relationship between synthesis parameters and crystal shape
- Photocatalytic degradation of contaminants of emerging concern and air cleaning by shape-tailored photocatalysts
- Composites containing differently shaped semiconductors and metal micro-/nanostructures for water and air cleaning
- The importance of the crystal shape in the antibacterial and photocatalytic activity for inactivation of microorganisms
- Hierarchical nanostructures for photocatalytic applications

Authors can submit their manuscripts via the Manuscript Tracking System at http://mts.hindawi.com/submit/journals/ijp/stsm/.

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