Special Issue

Advances in Two-Dimensional Photocatalysts

Message from the Guest Editors

Photocatalysts in the form of 2D nanostructures have inherent advantages over their 3D counterparts, including high surface area-to-volume ratios, shorter migration paths of photogenerated charge carriers from bulk to surface, and abundant and diverse active sites. To construct 2D nanostructures with high-efficiency photocatalytic activity, various modulation strategies have been explored and developed, such as the creation of heterojunction, defect engineering, heteroatom doping, crystal facet engineering, thickness engineering, etc. Despite great strides in 2D photocatalysts being achieved in recent years, low visible–light photoactivity continues to be a great burden on industrial-scale applications. The development of 2D nanostructures with superior visible–light photocatalytic performance offers many research opportunities and challenges. This Special Issue will focus on recent advances in emerging 2D nanostructures for a wide variety of photocatalytic applications, as well as experimental and computational studies to understand their reaction mechanisms and predict reactivities.

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Deadline for manuscript submissions

closed (30 April 2024)

Catalysts

an Open Access Journal by MDPI

Impact Factor 4.0
CiteScore 7.6

mdpi.com/si/138643

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