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Heterojunction-Based Photocatalysts and Photoelectrodes for Water Splitting and CO₂ Reduction: From Fundamentals to Applications

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Message from the Guest Editors

The aim of this Special Issue is to highlight current research on heterojunction-based photocatalysts and photoelectrodes for H₂ generation and CO₂ reduction, with focus on issues that still drastically hamper their performance. In this context, significant advancement lies in further understanding of aspects related to surface structural requirements and their relationship to bulk properties. The electronic properties of, e.g., semiconductor/semiconductor or metal/semiconductor interfaces, the role of metal and metal oxides clusters in charge transfer or, at a more fundamental level, the engineering of orbital overlap between reactants and the semiconductor surfaces, and the associated charge lifetime and charge transfer reaction kinetics are deemed essential to improve photocatalytic and photoelectrochemical efficiencies.



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Special Issue