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Functional Semiconducting Nanomaterials for Sustainable Development

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Message from the Guest Editors

Nowadays, functional semiconducting nanomaterials, have played an important role in achieving a sustainable society. First of all, for clean, renewable energy harvest, storage, and utilization, semiconducting nanomaterials have exhibited substantial importance. Many cutting-edge photocatalysts have been found that can effectively produce hydrogen and other fuels under solar irradiation. Compound semiconductor nanomaterials, such as metal dichalcogenides, phosphides, and oxides, can be used for efficient electrochemical/photophysical energy storage and conversion. In terms of environmental protection, semiconductor nanomaterials can be used to capture and catalytically decompose pollutants in air and water. Moreover, the quick development of nanomedicine has also aroused intense interest in the use of semiconductor nanomaterials for health-related outcomes, such as anti-tumor, anti-bacterial, bioimaging, etc. It is clear that the emerging functional semiconducting nanomaterials will provide powerful tools to study and understand nature at a new level, and will solve the challenges we are facing in the energy, environment, and health fields.





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