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Volume 5

Edited by P. John Thomas
and Neerish Revaprasadu



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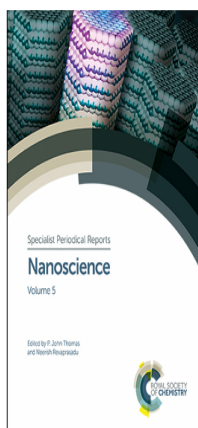
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BOOK CHAPTER

Nanoscale porphyrin superstructures: properties, self-assembly and photocatalytic applications

By Sheshanath V. Bhosale ; Duong Duc La

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This book chapter presents the recent progress in the fabrication of porphyrin-based nanomaterials *via* self-assembly and its properties as well as applications in the field of hydrogen production, chemical sensors, carbon dioxide reduction, fuel cells, and photovoltaic applications. It begins with an introduction about the porphyrin and the self-assembly method for fabrication of porphyrin nanomaterials. The main driving forces for porphyrin self-assembly will be discussed in detailed. All the methods for the fabrication of porphyrin nanostructures *via* self-assembly such as: reprecipitation, ionic self-assembly, coordination polymerization and other methods will be provided. Finally, the possible applications of porphyrin-based nanomaterials with a focus on photovoltaic applications will be mentioned with highlights from our recent work in this field.