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an Open Access Journal by MDPI

CiteScore: 5.4

Impact Factor: 2.8

Special Issue Reprint

Advanced Semiconductor Materials and Films: Properties and Applications

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This Reprint focuses on the properties and applications of advanced semiconductor materials and films, which covers the investigation of the material synthesis, theoretical calculation, structural evaluation, thermodynamic stability, and devices of semiconductor materials. Semiconductor materials and device research is a research hotspot in today's world. With the continuous development of nanoscience and nanotechnology, the need for miniaturization, high integration, and low energy consumption in integrated devices will lead to higher requirements for semiconductor materials and technology. In particular, in the field of micromization low-energy-consumption devices, bandgap modulation of semiconductor materials is essential. However, there are many challenges in their practical applications that restrict further development and large-scale application. This Reprint highlights key areas including the structural evaluation and stability of organic semiconductors, the doping and stability of inorganic perovskites, the external quantum efficiency of light-emitting diodes, morphological engineering and semiconductor coupling in photocatalysis, and the effects of ion doping in semiconductors. We believe that this publication can meet the needs of a wide range of readers, provide a little inspiration for a wide range of researchers, and lay important foundations for research in the field of materials. We therefore believe that novel semiconductor materials may have many potential applications in the field of nanoscience and nanotechnology and will make a valuable contribution to the nanoworld.



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