



Advanced Materials for Heterojunction

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Message from the Guest Editor

The use of conventional semiconductors for heterojunction-based electronic devices is facing a bottleneck after the urgent requirement of the market to reduce the dimensions below the quantum limit. Since the first synthesis of graphene, research developed towards the possible use of new materials that are able to substitute Si in most devices. At the same time, new phenomena, such as Majorana Fermions, superconductivity and low dimensional related effects, emerged at the interface between different materials opening new and exciting perspectives for fast electronics. Very recently, new materials have demonstrated their feasibility to substitute or integrate Si for heterojunction-based electronic devices. Their distinguished characteristics are a simple mechanism of growth down to few atomic layers, integration with traditional semiconductors, optical properties which overcome the limit of the Si absorption band, high carrier mobility at room temperature, easy doping, possibility to be deposited on different substrates, possible flexibility, etc.





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