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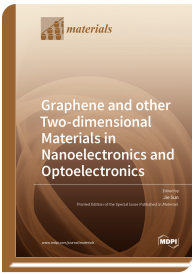
Special Issue Reprint

Graphene and other Two-dimensional Materials in Nanoelectronics and Optoelectronics



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Graphene is probably the most fascinating material discovered in this century. A group of 2D materials can be called graphene derivatives, and these have attracted tremendous interest. This includes materials that are one or a few atoms thick. They have outstanding optical/electrical properties, and, most importantly, they are flat and thin—they can be processed with existing semiconductor technologies. Therefore, they have great potential in nanoelectronics and optoelectronics, playing a revolutionary role in these fields via their integration with other bulk materials. Of course, there are still challenges, such as large-scale production, as well as the mechanical transfer of these atomically thin sheets. These are the fields where scientists are now actively doing research. In this book, some leading scientists in the area share their most recent results on the material growth, device physics/processing, and system integration of 2D materials and devices. This book can serve as a starting point for young students to get familiar with the field, and should also be valuable to established device physicists and engineers who would like to explore the potential applications of 2D materials in electronics.

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