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“Graphene is a material gaining enormous attention, particularly since the 2010 Nobel Prize in Physics. Since the number of studies on spin-dependent transport phenomena in graphene is growing rapidly, it has been difficult to prepare a comprehensive textbook on the various aspects of graphene. This book is the first publication explaining various issues of spin transport in graphene in detail, from both basic and technical points of view, and gives us a theoretical background for understanding spintronics behaviors in graphene. It also presents concise surveys of spintronics research on various material systems, in addition to graphene studies, and therefore will serve nonspecialists as an introductory guide on all aspects of spintronics.”

Teruya Shinjo

Emeritus Professor, Kyoto University, Japan

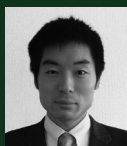
The discovery and fabrication of new materials have opened the gate for new research fields in science and technology. The novel method of fabricating graphene, a purely 2D carbon lattice, and the discovery of the phenomenon of giant magnetoresistance (GMR) in magnetic multilayers are not exceptions. The latter has brought about the creation of the new technological field of spintronics, which utilizes both spin and charge degrees of freedom of electrons. As for the former, many applications have been proposed; however, no practical devices have yet been developed in the field of spintronics. The aim of this book is to provide possible hints to overcome the difficulties in graphene applications in the field of spintronics by comparing the physical properties of graphene and magnetoresistive (MR) phenomena in spintronics. The book will be useful for advanced undergraduate students and graduate students of physics, chemistry, and materials science and young researchers in nanotechnology and the field of spintronics.



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