

Special Issue Reprint

Symmetry and Mesoscopic Physics

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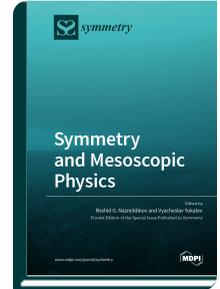
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Symmetry is one of the most important notions in natural science; it lies at the heart of fundamental laws of nature and serves as an important tool for understanding the properties of complex systems, both classical and quantum. Another trend, which has in recent years undergone intensive development, is mesoscopic physics. This branch of physics also combines classical and quantum ideas and methods. Two main directions can be distinguished in mesoscopic physics. One is the study of finite quantum systems of mesoscopic sizes. Such systems, which are between the atomic and macroscopic scales, exhibit a variety of novel phenomena and find numerous applications in creating modern electronic and spintronic devices. At the same time, the behavior of large systems can be influenced by mesoscopic effects, which provides another direction within the framework of mesoscopic physics. The aim of the present book is to emphasize the phenomena that lie at the crossroads between the concept of symmetry and mesoscopic physics.

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