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Metal-Insulator Transitions

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Message from the Guest Editors

Dear Colleagues,

The distinction between metals and insulators seemed simple: If the chemical potential lies within the conduction band, the system is a metal; if it lies between the conduction and the valence bands, the system is an insulator. However, after Anderson's and Mott's concepts of localization, it turned out that the situation is not that simple, and that the strong disorder can cause localization, even in three-dimensional metals. Especially intriguing is the situation in disordered two-dimensional (2D) electron systems. According to the scaling theory of localization, the ever-present randomness causes noninteracting 2D electrons to always be localized in the limit of zero temperature. However, new evidence has emerged within the past two decades indicating a transition from insulating to metallic phase in two-dimensional systems of strongly interacting electrons. The aim of this Special Issue is to attract world-leading researchers in the area of metal-insulator transitions to highlight the latest exciting developments as well as to discuss the underlying physics.

Prof. Sergey Kravchenko
Prof. Alexander Shashkin
Guest Editors

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Message from the Editor-in-Chief

As the world of science becomes ever more specialized, researchers may lose themselves in the deep forest of the ever increasing number of subfields being created. This open access journal Applied Sciences has been started to link these subfields, so researchers can cut through the forest and see the surrounding, or quite distant fields and subfields to help develop his/her own research even further with the aid of this multi-dimensional network.

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