Special Issue

Recent Advances in Nanowires and Superconductors (Second Edition)

Message from the Guest Editor

Advancements in the theoretical and experimental understanding of quantum wires (QWs), ranging from semiconductors and carbon nanotubes (CNTs) to topological insulators (TIs), have led to the proposal and observation of a plethora of novel physical phenomena. Even in a weakly interacting context, interesting physics may arise in wires made of non-trivial materials such as TIs and in spin–orbit coupled insulators. Such systems are interesting on their own, and even more so when proximized with superconductors. Connecting and possibly stacking several such QWs is a required goal in order to control and exploit the properties of Majorana and parafermionic modes, to build individual quantum gates and, eventually, to scale up towards complex quantum circuits. Beyond their usefulness in topological quantum computation, superlattices of QWs show novel collective phenomena, leading, for instance, to new optical transitions and vibrational properties. We hope that this Special Issue will contribute to the cross-fertilization of the different subfields mentioned above.

Guest Editor

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Nanoscience and nanotechnology are exciting fields of research and development, with wide applications to electronic, optical, and magnetic devices, biology, medicine, energy, and defense. At the heart of these fields are the synthesis, characterization, modeling, and applications of new materials with lower nanometer-scale dimensions, which we call “nanomaterials”. These materials can exhibit unusual mesoscopic properties and include nanoparticles, coatings and thin films, metal–organic frameworks, membranes, nano-alloys, quantum dots, self-assemblies, 2D materials such as graphene, and nanotubes. Our journal, *Nanomaterials*, has the goal of publishing the highest quality papers on all aspects of nanomaterial science to an interdisciplinary scientific audience. All of our articles are published with rigorous refereeing and open access. We are proud of our increasing impact factor and ability to provide rapid decisions to authors.

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