



Simulation Study of Nanoelectronics

Guest Editor:

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Message from the Guest Editor

TCAD simulations have enabled extensive achievements in silicon-based semiconductor development. The rapid evolution of semiconductor technology has already seen carrier behaviors in integrated devices discussed within the quantum field. Moreover, numerous materials have been proposed to supplement the function of silicon in electronic devices. These developments mark progress in overcoming the challenges in TCAD simulations due to complex quantum effects and out-of-order systems. The present Special Issue of *Nanomaterials*, entitled “Simulation Study of Nanoelectronics”, aims to present contemporary state-of-the-art methods for solving problems in the quantum transport simulation domain, such as establishing tight-binding models, introducing scattering, simulating out-of-order systems, and performing other relevant tasks. Based on these methods, we are also seeking to publish interesting simulation results on semiconductor materials that are also promising candidates for electronic applications in the future. We hope this Special Issue will advance our understanding of the complex physical behaviors of electrons in nanoscale materials and device structures.





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Editor-in-Chief

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Message from the Editor-in-Chief

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.

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