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Quantum Beam and Its Applications for Quantum Technologies

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Message from the Guest Editor

Dear Colleagues,

The first quantum revolution created electronics based on semiconductors, optical engineering, and information and communication technologies. As a result, our daily life has dramatically changed. Quantum beam is used as an indispensable technology (ion beams for doping, electron beams for carrier lifetime controlling, etc.) for the first quantum revolution. However, we are facing issues which are difficult to solve using current technologies. Quantum technologies such as quantum computing, quantum cryptography, and quantum sensing are rapidly developed, and a new era of quantum technologies, so-called “Second quantum revolution”, is coming now. Quantum beam technologies have enough potential to be one of the key technologies to accelerate the second quantum revolution. To do so, we need to improve/sophisticate current technologies and demonstrate advanced quantum beam. The scope of this Special Issue incorporates a wide range of topics on quantum beam and its applications for quantum technologies.....

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Message from the Editor-in-Chief

Quantum Beam Science focuses on application of quantum beams for the study and characterization of materials in their widest sense, and developments of quantum beam sources, instrumentation and facilities. Quantum beams include synchrotron radiation, neutron beams, electrons, lasers, muons, positrons, ions. The journal covers disciplines including, solid state physics, chemistry, crystallography, materials science, biology, geology, earth- and planetary materials, and engineering. Articles presenting multiple quantum beams for complementary studies are welcome.

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