

Special Issue

Quantum Effect in Interaction between Femtosecond Pulse and Matters

Message from the Guest Editor

The interaction between femtosecond laser pulses and matters leads to numerous nonlinear and quantum optics phenomena, such as multiphoton/tunneling ionization, fluorescence, terahertz, high-order harmonic generation. The pulse shaping technique makes the femtosecond pulses more powerful to study the interaction between femtosecond pulses and matters. Especially, the emergence of optical vortex endowed the femtosecond pulses with orbital angular momentum. Since the light intrinsically carries spin angular momentum, as femtosecond pulses carry orbital angular momentum and interact with matters (atoms, molecules, and material with micro-nano structure, etc.), spin-orbital coupling occurs, which brings about new quantum and nonlinear effects. This opens up tremendous new applications in optical tweezers and particle trapping, microscopy and imaging, high-capacity optical communication and cryptography and so on.

Guest Editor

Dr. Suyu Li

Institute of Atomic and Molecular Physics, Jilin University, Changchun, China

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Quantum Beam Science
Editorial Office
MDPI, Grosspeteranlage 5
4052 Basel, Switzerland
Tel: +41 61 683 77 34
qubs@mdpi.com

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About the Journal

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.

Editor-in-Chief

Prof. Dr. Klaus-Dieter Liss

School of Mechanical, Materials, Mechatronic and Biomedical
Engineering, University of Wollongong, Wollongong 2522, Australia

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