Special Issue

Characteristics and Applications of the Secondary Radiation Generated by Intense Femtosecond Laser Pulses

Message from the Guest Editor

The interaction of intense (>1018 W/cm2) femtosecond-duration laser pulses with matter has been shown to produce brilliant, high energy secondary radiation sources, such as electrons, ions, gamma rays, and terahertz radiation. Over the years, significant attention has been drawn to the diverse range of possible applications for these sources, for example in therapeutic applications, nuclear physics, and high energy density matter physics. These sources offer advantages over conventionally created beams, namely their ulra-short burst duration, high flux, and compact acceleration lengths. This Special Issue will focus on the characteristics of the radiation that can be generated by such high-intensity pulses, including their applications to industry, research, and beyond. Topics that this issue covers include:

- Plasma wakefield acceleration;
- Ion acceleration;
- Neutron beam generation;
- High harmonic generation;
- Terahertz generation;
- Strong-field QED processes;
- High energy density matter;
- Proton–boron fusion;
- Applications of high energy laser-driven sources;
- High repetition rate beams.

Guest Editor

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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.

Editor-in-Chief

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