Special Issue

Progress in Laser Accelerator and Future Prospects

Message from the Guest Editors

Laser wakefield acceleration (LWFA) drives the future of accelerators. Wakefields in a plasma by laser may be 4 orders magnitude higher over fields in RF-based accelerators. These are coherent collective fields, in contrast to individual particle forces. The advances in laser and particle beam technologies drive us into higher frequencies (such as X-rays), which also open up the possibility of even more compact laser accelerators based on nanomaterials or other solid- state media. When taking different advantages of LWFA and the particle-beam driven PWFA, a hybrid plasma accelerator approach can provide additional potential applications. We are excited to invite researchers to submit their contributions to this Special Issue. Topics include but are not limited to:

- Laser accelerators;
- Collective wakefield dynamics, its control, experimental realizations, and measurements;
- LWFA for a future high-energy accelerator;
- Hybrid LWFA-PWFA;
- High-density LWFA;
- Laser ion acceleration;
- Medical and other applications of LWFA;
- LWFA and X-rays;
- Cosmic wakefields and observational signatures;
- Laser wakefield induced analog black holes;
- Wakefields for fusion and fission

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You are invited to contribute a research article or a comprehensive review for consideration and publication in *Photonics* (ISSN 2304-6732). *Photonics* is an online open access journal covering both the fundamental and applications of optics and photonics. *Photonics* strives to provide an avenue to allow authors to disseminate their scientific findings—both theoretical/ simulations and experimental works—in highly accessible peer-reviewed journal publications. The manuscript in *Photonics* will be handled with quick turnaround production processing time. We welcome authors to submit their manuscripts for publications in *Photonics*. Our goal in *Photonics* is to enable fast dissemination of high impact works to the scientific community.

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