Special Issue

New Challenges in Plasma Accelerators

Message from the Guest Editors

Research on plasma wakefield acceleration has shown tremendous progress over the last thirty years. Accelerating gradients orders of magnitudes larger than those seen in conventional accelerators have been demonstrated, as well as substantial improvements in the quality and control of the accelerated beam. A number of challenges still need to be addressed in order for us to use plasma-based accelerators to deliver beams in real-world applications:

- Ensuring the stability and reproducibility of the acceleration process;
- Enabling resilience to beam–plasma instabilities over long propagation distances;
- The creation of acceleration at a high repetition rate;
- Ensuring the robustness of all components;
- The staging of multiple wakefield accelerators.

This Special Issue will be dedicated to these and other challenges, marking a step on the road towards the realization of user-oriented plasma wakefield accelerators.

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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.

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