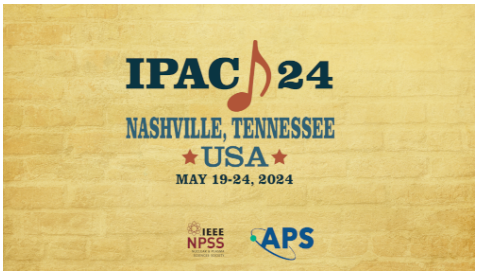

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Generation femtosecond proton beam for laser plasma acceleration

Thursday, 23 May 2024 16:00 (2 hours)

Laser plasma accelerators have a great potential to accelerate a charged particle beam to high energy within a short distance due to their extraordinarily high accelerating gradient. However, in order to effectively use the laser plasma accelerator, the input beam has to be moving at relativistic velocities, with a duration 100 femtoseconds or less. In this study, we propose a scheme to generate a femtosecond proton beam for the laser plasma acceleration. The self-consistent simulation including the three-dimensional space-charge effects was used to verify this concept in a simplified version.

Footnotes

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