

The physics of plasma based acceleration: a personal perspective

Wei Lu

Tsinghua University of Beijing, China

As an active subfield of plasma physics, plasma based acceleration has made great strides worldwide in the past decade. I was very fortunate to be part of this exciting time and to be able to make my own small contribution. In this talk, I want to present a quite personal perspective about this promising field, with a focus on the key physics involved. Then some recent works in my group at Tsinghua University will be presented briefly to give some future perspectives, including theories and simulations on obtaining high quality electron beams with extremely high brightness through wakefield acceleration, and experimental results of high quality electron beam generation with very low energy spread (a new world record: with minimal absolute energy spread of 0.18MeV and relative energy spread 0.8% ).