

Abstract Submitted
for the DPP17 Meeting of
The American Physical Society

Status and future plans for open source QuickPIC WEIMING AN, VIKTOR DECYK, WARREN MORI, Univ of California - Los Angeles — QuickPIC is a three dimensional (3D) quasi-static particle-in-cell (PIC) code developed based on the UPIC framework. It can be used for efficiently modeling plasma based accelerator (PBA) problems. With quasi-static approximation, QuickPIC can use different time scales for calculating the beam (or laser) evolution and the plasma response, and a 3D plasma wake field can be simulated using a two-dimensional (2D) PIC code where the time variable is $\xi = ct - z$ and z is the beam propagation direction. QuickPIC can be thousand times faster than the normal PIC code when simulating the PBA. It uses an MPI/OpenMP hybrid parallel algorithm, which can be run on either a laptop or the largest supercomputer. The open source QuickPIC is an object-oriented program with high level classes written in Fortran 2003. It can be found at <https://github.com/UCLA-Plasma-Simulation-Group/QuickPIC-OpenSource.git>

Weiming An
Univ of California - Los Angeles

Date submitted: 14 Jul 2017

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