

Pic3P

Pic3P is a 3D parallel finite-element based Particle-in-Cell code. Designed for simulations of beam-cavity interactions dominated by space charge effects, Pic3P solves the complete set of Maxwell-Lorentz equations self-consistently and includes space-charge, retardation and boundary effects from first principles.

Higher-order Finite Element methods with adaptive refinement on conformal unstructured meshes lead to highly efficient use of computational resources. Massively parallel processing with dynamic load balancing enables large-scale modeling of photoinjectors with unprecedented accuracy, aiding the design and operation of next-generation accelerator facilities.

Applications have included the [LCLS](#) RF gun and the [BNL](#) polarized SRF gun.