

Radiation Reaction in the Interaction of Ultraintense Laser with Matter & Gamma Ray source

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Purpose To find optimum condition for efficient gamma ray production via laser matter interaction.

Outline The interaction of relativistic electron beam with intense laser is treated self-consistently in order to describe the conversion efficiency of laser energy into gamma ray accurately by including radiation reaction.

Result The laser electric field, E'_y (left) and charge density (right) for time step 100, 300 and 600 from top to bottom. The laser intensity is 10^{22} W/cm² with 10 fs pulse duration. The electron kinetic energy is 40 MeV with 10^9 of particles.

The electron beam was splitted into two by laser.

Computing system: SX-ACE

node-hour : 4 node-hour

memory used : 133 GB

vector per : 90 %

parallelize : 4 nodes

