

Gamma-ray Generation At Laser-Solid Interaction In Near QED Regime

I. Yu. Kostyukov^{1,2}, E. N. Nerush^{1,2}

¹*University of Nizhny Novgorod, Nizhny Novgorod 603950, Russia*

²*Institute of Applied Physics RAS, Nizhny Novgorod 603950, Russia*

Gamma-ray generation at laser-solid interaction is investigated in the range of intensities 10^{23} – 10^{25} W cm⁻² and electron densities 10^{22} – 10^{24} cm⁻³. We focus on properties of gamma radiation, such as its overall energy, directivity of the radiation pattern, and the energy spectrum. The effect of ion acceleration on gamma-ray production is discussed. A simple analytical model is proposed. The model predictions are compared with results of PIC-MC simulations.