NONLINEAR THOMSON SCATTERING OF AN INTENSE LASER PULSE ON ELECTRON BEAM

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Abstract

The x|-|ray radiations generated through relativistic nonlinear Thomson scattering (RNTS) of an intense laser pulse by electrons have been attracted due to its ultra|-|short nature. Under restricted conditions, the harmonic spectra of RNTS radiations show coherent properties, which leads to an ultra|-|short x|-|ray pulse. Under a planewave approximation, we obtained an analytic formula to describe such conditions, including electron beam parameters such as beam diameter, length, emittance, and energy spread. We will show how the coherent spectrum is affected on the electron beam parameters through numerical simulations.

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