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Hamiltonian Formulation of Direct Laser Acceleration in Vacuum M. ELOY, Faculdade de Engenharia da Universidade Católica Portuguesa, A. GUERREIRO, Universidade do Porto, Portugal, J.T. MENDONCA, GOLP, Lisboa, Portugal, R. BINGHAM, Rutherford Appppleton Laboratory, Didcot, Oxon
— We present a new formulation for the direct laser acceleration of electrons in vacuum based on the Hamiltonian theory. Two different regimes for the snow-plowed accelerated electrons are identified and characterized, the first pertaining to high intensity and the second to low-intensity pulses, both leading to efficient electron acceleration. Particle energy yields are shown to be independent on the exact shape of the laser pulse and energy gains are estimated. The radiation signature due to electrons being reflected from the photon pulse is also permitted.

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