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A model of hot electron generation in a plasma wave with increasing phase velocity[1] CHUANG REN, WENDA LIU, University of Rochester — Preheating from hot electrons generated in laser-plasma instabilities (LPI) is a major concern in direct-drive inertial confinement fusion. Plasma waves in LPI generally have increasing phase velocities as they propagate toward higher density. We developed a model of hot electron generation in a plasma wave of given amplitude, width, and phase velocity gradient. The resultant closed-form analytical expression of hot electron flux was benchmarked with numerical solutions and particle-in-cell simulations. It provides a first step to develop a theory for LPI hot electron generation that can be used in hydro codes.

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