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Absorption of Ultra-Short Intense Laser Pulses and Particle Transport in Solid Density Targets MARK SHERLOCK, Rutherford Appleton Laboratory, Chilton UK, WOJCIECH ROZMUS, Department of Physics, University of Alberta, Edmonton, Alberta, Canada, STEFAN HULLER, CPHT, Ecole Polytechnique, Palaiseau, France — A new version of the numerical code KALOS [1] has been developed to solve the Vlasov-Fokker-Planck equation for the electrons and ions as well as EM wave propagation. KALOS represents the electron distribution function in momentum space by an expansion in spherical harmonics. Its unique features make possible simultaneous investigations of fast electron generation and transport and the collisional evolution of thermal particles, including the return current of cold electrons, without the usual 'hybrid' approximation. We report here on results obtained in 1D3P. Absorption of short ($\sim$100fs) laser pulses has been studied over a range of intensities (10^{14}-10^{18} W/cm^2) at normal incidence in sharp-edged dense plasmas. We have studied the effect on absorption of energy transport into the target as well as the deviation of the electron distribution function from Maxwellian. The role of kinetic effects has been assessed by comparing the full kinetic KALOS calculations with the hydro code MULTI-FS [2] and theoretical predictions of absorption and transport. [1] A. R. Bell, *et al.*, Plasma Phys. Control. Fusion **48**, R37 (2006). [2] K. Eidmann, *et al.*, Phys. Rev. **E62**, 1202 (2000).

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