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Scaling of Ion Acceleration in Super Intense Laser Matter Interaction in Radiative Damping Regime RISHI PANDIT, Southern Illinois University, Edwardsville, IL, YASUHIKO SENTOKU, University of Nevada, Reno, NV, EDWARD ACKAD, Southern Illinois University, Edwardsville, IL — We had derived the radiation reaction terms including the higher orders and implemented in PICLS codes [R. Pandit and Y. Sentoku, Phys. Plasmas 19, 073304(2012)]. It was found that higher order terms of radiation reaction reduce the ponderomotive force as well as the photon pressure. The ponderomotive scaling, in super intense laser matter interactions, changes due to the decrease of the ponderomotive force on the electron and ion's accelerations. A new scaling of ion acceleration has been derived which depends on the laser intensity and oscillatory energy of electron. At 10^{23} W/cm^2 almost half of the ponderomotive force is damped due to higher order terms. We will show how the theoretical result compares with PICLS simulations by varying laser intensities to understand the effect of the reduced ponderomotive force in super intense laser matter interaction.

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