

Abstract Submitted  
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**Influence of laser field on Coulomb logarithm with MD simulations** OLIVIER POUJADE, RONAN DEVRIENDT, CEA DAM DIF — Coulomb logarithm,  $(\ln(\Lambda))$ , is involved in several important quantities of high energy density plasmas such as inverse bremsstrahlung absorption, electron-ion temperature relaxation frequency, electron conduction and more. Molecular-dynamic (MD) simulations of Plasmas of Ions and electrons in COulomb interaction have been carried out with our code PIeCO to measure numerically  $\ln(\Lambda)[n_e, T_e]$  out of the velocity damping of electrons through ions. PIeCO reproduced results of MD simulations by Dimonte and Daligault [1] and theoretical results by BPS [2]. The work presented in this talk will focus on PIeCO simulations of the same type of plasmas subjected, in addition, to oscillating electric fields (to mimic a laser field with  $\lambda=351$  nm and intensities ranging from  $I=10^{11}$  to  $10^{15}$  W/cm<sup>2</sup>). The results of these MD simulations allowed to grasp the non-trivial variation of  $\ln(\Lambda)$  with respect to  $I$  and  $\lambda$  (in addition to  $n_e$  and  $T_e$ ). A best fit of  $\ln(\Lambda)[n_e, T_e, I, \lambda]$  involving all 4 parameters will be presented.

1. G. Dimonte and J. Daligault, PRL **101**, 135001 (2008)
2. L.S. Brown et al., Phys. Reports **410**, 237 (2005)

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