

Abstract Submitted  
for the DPP09 Meeting of  
The American Physical Society

**Scaling Studies of Pair Production by Ultraintense Lasers** EDISON LIANG, ALEXANDER HENDERSON, TAL EINAV, PABLO YEPES, Rice University, HUI CHEN, SCOTT WILKS, Lawrence Livermore National Laboratory — Using a combination of particle-in-cell plasma kinetic simulations and the CERN GEANT code for pair production, we systematically study the pair production by ultraintense lasers irradiating gold targets. We will present results for the pair production yield as a function of laser and target parameters. Using these we will develop road maps for future experiments to optimize the pair yield. Applications of these results to both laboratory astrophysics and high density positronium physics will be discussed.

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Date submitted: 19 Jul 2009

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