

Abstract Submitted  
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**Numerical Simulations of Pair Production by Ultraintense Lasers**

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combination of particle-in-cell plasma kinetic codes and the CERN GEANT4 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  
and spectra as a function of laser and target parameters, and compare simulation  
results with recent data from Titan and other laser experiments. Using these we  
will design future experiments to optimize the pair yield and pair density. Poten-  
tial applications of these results to both laboratory astrophysics and high density  
positronium physics will be discussed.

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