

Monte-Carlo Simulation of Pair and Gamma Ray Production Using Petawatt lasers

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Abstract

Irradiating high-Z targets such as gold with ultra-intense lasers produces copious electron-positron pairs and gamma rays. The Bethe-Heitler and brehmstahlung processes dominate production, which makes Monte Carlo simulation of this system particularly attractive. We present results from such a simulation and compare these with results from the Titan laser at Lawrence Livermore National Labs (LLNL) and the Texas Petawatt Laser (TPW) at the University of Texas at Austin.