

Lepton pair production in ultra-peripheral collisions in classical field approximation

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We study the lepton pair production in the ultra-peripheral collisions (UPC) in classical field approximation. We derived a general expression of impact parameter dependent differential cross section of lepton pair production including the transverse momentum and space dependent distribution of photons based on the quantum electrodynamics (QED) calculations. Our differential cross section in classical field approximation contains the results from generalized equivalent photon approximation (EPA) and the corrections beyond EPA in Born approximation. We also rewrite our differential cross section in the light cone formalism. Finally, our numerical results are consistent with the current experimental data.

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