Induced Photon Emission in Laguerre-Gauss Beams

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The Euler-Heisenberg Lagrangian encodes the self-coupling of electromagnetic fields, giving rise to various nonlinear effects of quantum origin [1]. In particular, strongly focused external fields can induce signal photons generated at distinct harmonics, polarization and momenta than the laser photons partaking in the collision process [2–7]. In this talk, I will discuss the emission characteristics of signal photons that emerge from collision between Laguerre-Gauss (LG) beams [8]. The novelty of using LG beams is that signal photons can be generated with distinct orbital angular momentum signatures, which may enhance the signal to background ratio [9].

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