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## Effect of differential cross section in Breit-wheeler pair beaming

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The pair creation from the Breit-Wheeler process  $\gamma+\gamma$  to  $e^+e^-$  is one of the basic processes in the universe. The electron-positron production is the lowest threshold process in photon-photon interaction, controlling the energy release in Gamma Ray Bursts, Active Galactic Nuclei, black holes and other explosive phenomena. It is also responsible for the TeV cutoff in the photon energy spectrum of extra-galactic sources. Laser induced intense gamma-ray sources will allow a direct observation of this process in the laboratory for the first time. Using such MeV photon sources, a new experimental set-up based on numerical simulation with QED effects is proposed to achieve more than  $10^4$  Breit-Wheeler pairs per shot. In this work we will demonstrate the effect of pair beaming in the collision of two photon beams which may facilitate the experimental observation of the Breit-Wheeler process. Moreover, we will discuss the effect of the differential Breit-Wheeler cross section on pair beaming and consider this effect in the context of Active Galaxy Nuclei.

### Biography

Ribeyre X has completed his PhD in 2006 on Rayleigh-Taylor instability in Supernovae remnant from Bordeaux University and obtained his habilitation (HDR) on contribution in high energy density physics in 2014. He has directed five PhD theses. He is Researcher in CELIA at Bordeaux University in interaction, inertial confinement fusion and astrophysics group. He has published more than 80 papers in peer-reviewed journals.

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