



Contribution ID: 175

Type: Poster

Design of a Watt-level gamma-ray source based on high-repetition-rate inverse Compton Scattering

Thursday, 29 September 2016 18:40 (1 hour)

A high-brilliance ($> 10^{20}$ phot.s⁻¹.mm⁻².mrd⁻²/0.1%) gamma-ray source experiment is currently in preparation at Fermilab ($E_\gamma \simeq 1.1\sim$ MeV). The source implements a high-repetition-rate inverse Compton scattering by colliding electron bunches formed in a 300-MeV superconducting linac with a high-intensity laser pulse. This contribution describes the design rationale along with technical challenges associated to producing high-repetition-rate collision (e.g. development of a coherent stacking cavity). The expected performances of the gamma-ray source are also presented along with their sensitivity to fluctuations of electron-beam and laser parameters.

Primary author: PIOT, Philippe (northern Illinois University & Fermilab)

Presenter: PIOT, Philippe (northern Illinois University & Fermilab)

Session Classification: PS3: Poster session