ID de Contribution: **118** Type: **Non spécifié**

Implementation of a laser ciculator for the production of a high spectral brillance γ source

lundi 9 mai 2016 15:30 (20 minutes)

In the context of the R&D program of the EuroGammaS consortium, a collaboration between different academic and industry partners for the Nuclear Physics pillar of the European project Extreme Light Infrastructure (ELI-NP), two multipass γ-ray Compton machines are to be built in Măgurele, Romania with photons of tunable energy between 0.2 MeV and up to 20 MeV. These machines will have a spectral density an order of magnitude superior to best current machines ($\sim 10^4\ \mathrm{s}^{-1} \cdot \mathrm{eV}^{-1}$ at peak energy).
To achieve the required brilliance, the Gamma beam will be produced from the interaction between a relativistic electron bunch and a train of 32 pulses of a high power laser, both at 100 Hz. The spatial and temporal superimposition of the electron and laser beams is challenging and requires state-of-the-art precision machinery and techniques.
Due to the high number of optics (around 120), the surface defects of the mirrors are yet another key aspect to consider in order to obtain a good quality γ beam.
A prototype of the multi-pass systems is currently under construction and should be finished by the summer of 2016.
The challenges, advances and technical choices in the optical design of the Gamma Beam System will be exposed in this work.

Auteur principal: M. NDIAYE, Cheikh Fall (LAL)

Orateur: M. NDIAYE, Cheikh Fall (LAL)

Classification de Session: Poster session

Classification de thématique: Accelerator Physics