

Séminaire LAL

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The Gamma Factory : Tools made from Light

The Gamma Factory (GF) initiative is exploring the possibility of creating novel research tools by producing and storing highly relativistic beams of highly ionised atoms in the CERN accelerator complex, and then exciting their atomic degrees of freedom with lasers to produce high-energy photon beams. The intensity of such photon beams would, potentially, be several orders of magnitude higher than those offered by the presently operating light sources, in the particularly interesting gamma-ray energy domain of 0.1–400 MeV. In this energy range, the high-intensity photon beams could be used to produce secondary beams of polarized electrons, polarised positrons, polarised muons, neutrinos, neutrons and radioactive ions. A broad spectrum of new opportunities may be realised by the Gamma Factory programme. The progress of the GF initiative over the last 2 years includes the acceleration of atomic beams in the LHC, and the preparation of a proof-of-principle experiment in the SPS.

The GF principles, progress, plans, and possible applications are presented.

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Organisation :

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