Contribution ID: **12** Contribution code: **MOC3** Type: **Invited Oral Presentation**

High power optical cavities for ion beam cooling at the SPS Gamma Factory Proof of principle experiment

Monday 27 October 2025 14:30 (30 minutes)

The Gamma Factory is a project which aims providing unprecedented rates of photons in a wide range of energy, possibly up to 400MeV. It relies on resonant atomic excitation of partially stripped ions accelerated at high energies with state of the art high power laser systems enhanced in optical resonators. In a proof of principle experiment at the CERN SPS, a demonstration of the viability of the technology is aimed at with the goal to realize laser assisted ion beam cooling. A status report on the project implementation will be given with strong emphasis on the recent demonstration of >700kW stacked in an optical cavity.

Footnotes

- PBC-acc-GammaFactory-SPSpop@cern.ch

Funding Agency

Theauthorsacknowledgethesupportof theCERNPhysicsBeyondCollider initiative.

I have read and accept the Privacy Policy Statement

Yes

Author: MARTENS, Aurélien (Université Paris-Saclay, CNRS/IN2P3, IJCLab)

Presenter: MARTENS, Aurélien (Université Paris-Saclay, CNRS/IN2P3, IJCLab)

Session Classification: Laser Cooling Facilities Session

Track Classification: COOL'25