7th European Advanced Accelerator Conference

EAAC2025

Contribution ID: **695** Type: **Invited Talk**

First results from 10 PW electron acceleration experiments at ELI-NP

Wednesday 24 September 2025 09:30 (30 minutes)

We will present the latest results of the commissioning campaign of the E6-10 PW experimental area of ELI-NP, dedicated to High-Field QED physics. The laser was operated up to nominal power (230J, 23fs) and by shooting onto a gas jet target via a long focal spherical mirror. Stable multi-GeV electron beam were obtained and used to generate intense and energetic photon beams via bremsstrahlung, inverse Compton scattering and betatron emission. We will detail the general layout, the laser parameters and its stability, the targets and the diagnostics that have been commissioned during those pioneer experiments. We will discuss shortly their relevance for radiation sources, QED physics and nuclear physics.
The E6 area is already available for users, with the first 2 campaigns set for the second part of this year.

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Session Classification: Plenary Session

Track Classification: Invited Talk