



Contribution ID: 555 Contribution code: MOPA084

Type: **Poster Presentation**

Investigating the feasibility of delivering higher intensity proton beams to ECN3 at the CERN SPS North Area

Monday 8 May 2023 16:30 (2 hours)

Initiated through the Physics Beyond Colliders (PBC) Study Group there is a strong interest from the scientific community to exploit the full intensity potential of the Super Proton Synchrotron (SPS) at CERN for Fixed Target physics experiments before the end of this decade. With the ECN3 cavern in the North Area (NA) identified as a suitable candidate location for a future high-intensity experimental facility compatible with a large variety of experiments, the new PBC ECN3 Beam Delivery Task Force was mandated to assess the feasibility of delivering a slow extracted beam of up to 4×10^{19} protons per year at 400 GeV. This contribution summarises the conclusions of the multifaceted beam physics and engineering studies that have been carried out recently to understand the present intensity limitations and to find technical solutions to meet the request for higher intensity in the NA transfer lines towards ECN3. The necessary modifications to the beam lines, the primary target area, beam instrumentation and intercepting devices, as well as the relevant infrastructure and services are outlined, along with a timeline compatible with the NA consolidation project that is already underway.

Funding Agency

Footnotes

I have read and accept the Privacy Policy Statement

Yes

Author: FRASER, Matthew (European Organization for Nuclear Research)

Co-authors: AHDIDA, Claudia (European Organization for Nuclear Research); ARDUINI, Gianluigi (European Organization for Nuclear Research); ARRUTIA SOTA, Pablo Andreas (Oxford University); BARTOSIK, Hannes (European Organization for Nuclear Research); BERNHARD, Johannes (European Organization for Nuclear Research); CALVIANI, Marco (European Organization for Nuclear Research); COLINET, Antoine (European Organization for Nuclear Research); ESPOSITO, Luigi Salvatore (European Organization for Nuclear Research); FRANQUEIRA XIMENES, Rui (European Organization for Nuclear Research); GODDARD, Brennan (European Organization for Nuclear Research); GRENARD, Jean-Louis (European Organization for Nuclear Research); KADI, Yacine (European Organization for Nuclear Research); KAIN, Verena (European Organization for Nuclear Research); LA-FUENTE, Antonio (European Organization for Nuclear Research); JOSIFOVIC, Ivan (European Organization for Nuclear Research)

Nuclear Research); LI, Kevin (European Organization for Nuclear Research); MAZZOLA, Giuseppe (European Organization for Nuclear Research); NOWAK, Elzbieta (European Organization for Nuclear Research); PAL, Kincso (European Organization for Nuclear Research); PREBIBAJ, Tirsi (European Organization for Nuclear Research); RAMJIWAN, Rebecca (European Organization for Nuclear Research); ROMERA, Iván (European Organization for Nuclear Research); RONCAROLO, Federico (European Organization for Nuclear Research); SCHWARZ, Philip (CERN); VELOTTI, Francesco (European Organization for Nuclear Research); VENDEUVRE, Camille (European Organization for Nuclear Research); VAN DIJK, Maarten (European Organization for Nuclear Research); VINCKE, Helmut (European Organization for Nuclear Research); ZAMANTZAS, Christos (European Organization for Nuclear Research); ZICKLER, Thomas (European Organization for Nuclear Research); BRUGGER, Markus (European Organization for Nuclear Research); GAUTHERON, Fabrice (European Organization for Nuclear Research)

Presenter: ARRUTIA SOTA, Pablo Andreas (Oxford University)

Session Classification: Monday Poster Session

Track Classification: MC1: Colliders and other Particle Physics Accelerators: MC1.A25: Beyond Colliders