Contribution ID: **779** Contribution code: **WEPL148** Type: **Poster Presentation**

Overview of transverse instabilities in the CERN Proton Synchrotron

Wednesday, 10 May 2023 16:30 (2 hours)

During Long Shutdown 2 (2019-20), the injector chain of the Large Hadron Collider (LHC) has been upgraded to reach the High Luminosity LHC goals in terms of beam intensity and brightness. In the CERN Proton Synchrotron (PS), this upgrade consisted in hardware modifications to double the intensity at extraction, while preserving the transverse emittance available from the CERN PS Booster. The gradual beam brightness ramp-up in the PS after the restart in 2021 brought to light several impedance-induced instabilities. Each of these instabilities has been thoroughly studied in order to understand the impact of several key beam parameters (chromaticity, RF voltage, damper gain). Instability observations, mitigation strategies as well as comparisons with macroparticle tracking simulations will be presented in this paper.

Funding Agency

Footnotes

I have read and accept the Privacy Policy Statement

Yes

Primary author: JOLY, Sébastien (European Organization for Nuclear Research)

Co-authors: LASHEEN, Alexandre (European Organization for Nuclear Research); SALVANT, Benoit (European Organization for Nuclear Research); MIKULEC, Bettina (European Organization for Nuclear Research); MIGLIORATI, Mauro (Istituto Nazionale di Fisica Nucleare - Sez. Roma 1); MOUNET, Nicolas (European Organization for Nuclear Research)

Presenter: JOLY, Sébastien (European Organization for Nuclear Research)

Session Classification: Wednesday Poster Session

Track Classification: MC5: Beam Dynamics and EM Fields: MC5.D06: Coherent and Incoherent Instabilities Measurements and Countermeasures