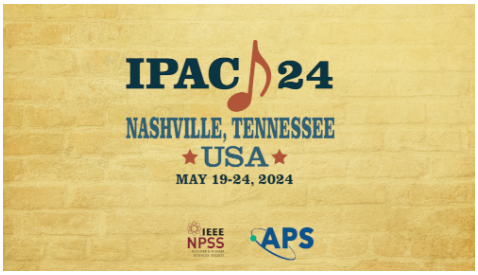

Contribution ID: **771** Contribution code: **TUPC42** Type: **Poster Presentation**

Instability issue of rapid cycling synchrotron of CSNS-II

Tuesday, 21 May 2024 16:00 (2 hours)

The Rapid Cycling Synchrotron (RCS) at the China Spallation Neutron Source phase II (CSNS-II) is a high intensity proton accelerator, which accumulates a 300 MeV proton beam and accelerates it to 1.6 GeV with a repetition rate of 25 Hz. The CSNS-II is designed to have a beam power of 500 kW. A circulated beam intensity current in the RCS is 15 A, making it the highest of its kind in the world. The beam power may be limited by the impedance and its beam effects Using impedance model, the beam instabilities in the RCS are systematically estimated, and the threshold and growth time of conventional instability are determined. Furthermore, a mitigation scheme for addressing key instabilities is proposed to achieve the desired design beam power.

Footnotes

Funding Agency

Paper preparation format

Region represented

Asia

Primary author: HUANG, Liangsheng (Institute of High Energy Physics)

Co-authors: RAO, Li (Institute of High Energy Physics); LIU, Hanyang (Institute of High Energy Physics)

Presenter: HUANG, Liangsheng (Institute of High Energy Physics)

Session Classification: Tuesday Poster Session

Track Classification: MC1: Colliders and other Particle and Nuclear and Physics Accelerators: MC1.A17 High Intensity Accelerators