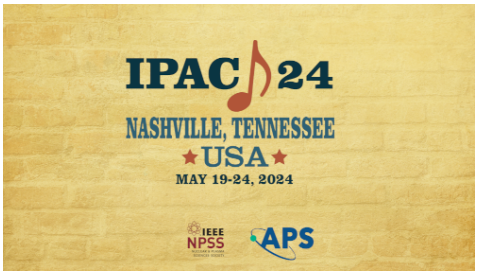

Contribution ID: **932** Contribution code: **THPS50** Type: **Poster Presentation**

Hardware Commissioning of the HL-LHC Inner Triplet String Facility at CERN: Individual System and Short Circuit Tests

Thursday, 23 May 2024 16:00 (2 hours)

The goal of the High Luminosity-Large Hadron Collider (HL-LHC) Inner Triplet (IT) String test, is to validate the assembly and connection procedures and tools required for its construction, to assess the collective behavior of the superconducting magnet chain in conditions as close as possible to those of their operation in the HL-LHC and to provide a training opportunity for the equipment teams for their work in the LHC tunnel. The IT String includes the systems required for operation at nominal conditions, such as the cryogenics, powering and quench protection systems. This contribution describes the individual system and short circuit tests performed at the IT String as part of the hardware commissioning and preparation for the full exploitation of the facility.
After describing the IT String infrastructure, the individual system tests performed on the cryogenic and the associated vacuum systems are detailed. Moreover, the individual system and short circuit tests executed on the warm powering systems part of the magnet circuit including power converters, energy extraction systems and the DC connections are described. The powering interlock controller used for the global interlocking of the magnet circuits is also validated during this phase. The tests described involve the same steps as those planned for the LHC collider. Therefore, they validate the systems to be installed and ensure the time-efficient execution of activities for the HL-LHC project.

Footnotes

Funding Agency

This work is supported by the HL-LHC project at CERN.

Paper preparation format

Word

Region represented

Europe

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Session Classification: Thursday Poster Session

Track Classification: MC7: Accelerator Technology and Sustainability: MC7.T21 Infrastructures