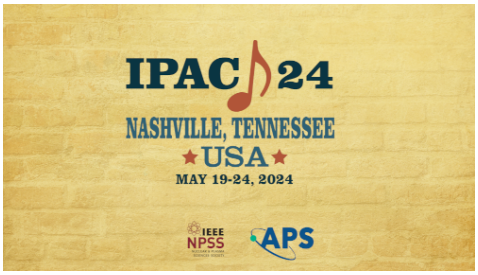

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Design, manufacturing and validation of the CLIQ units for the protection of superconducting magnets for the High-Luminosity LHC project at CERN

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

The novel Coupling-Loss-Induced-Quench (CLIQ) concept will be part of the quench protection system of the High Luminosity Large Hadron Collider (HL-LHC) Inner Triplet superconducting magnets at CERN. Several units of two distinct CLIQ prototype variants were produced to validate the CLIQ novel protection concept and define the system parameters for the required performance. Subsequently, these units were further enhanced by introducing additional redundancy, advanced monitoring systems, and improved safety features. These improvements culminated in the development of the third and final version. This paper provides insights into the evolution from prototypes to the final version to be installed in the machine, shedding light on the outcomes of comprehensive safety and electromagnetic compatibility (EMC) tests, coupled with extensive operational assessments.

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Primary author: CARRILLO, David (European Organization for Nuclear Research)

Co-authors: BERBERAT, Raphael (European Organization for Nuclear Research); FAVRE, Mathieu (European Organization for Nuclear Research); GEORGAKAKIS, Spyridon (European Organization for Nuclear Research); GUASCH-MARTINEZ, Josep (European Organization for Nuclear Research); LOPEZ CORDONCILLO, Denisse (European Organization for Nuclear Research); DE NICOLÁS LUMBRERAS, Enrique (European Organization for Nuclear Research); NOWAK, Edward (European Organization for Nuclear Research); POJER, Mirko (European Organization for Nuclear Research); RODRIGUEZ MATEOS, Felix (European Organization for Nuclear Research); LEON LOPEZ, Miguel (Centro de Investigaciones Energéticas, Medioambientales y Tecnológicas)

Presenter: CARRILLO, David (European Organization for Nuclear Research)

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