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JORDI test facility (SPC, EPFL)

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Oral presentation (25 min) + Q&A (10 min)

An extensive characterization of cable-in-conduit conductors (CICC) at the EPFL Swiss Plasma Center led to the construction of the JORDI test stand in the 2000s, initially used for JOint Resistance DIstribution measurements in CICC immersed in a liquid helium bath [1]. The test stand is connected to a cryoplant supplying helium in a supercritical state at ~ 10 bar pressure and ~ 4.5 K temperature, as well as a DC power supply rated for 10 kA and 2 V. Consequently, it was used for testing sub-scale HTS current leads designed for fusion magnets; however the helium flow was still expanded to relatively low pressures, close to 1 bar [2]. Currently, we aim to upgrade JORDI in terms of cooling conditions, operating currents, and background magnetic fields to expand the testing capabilities at SPC within a testing zone of 0.7 m in diameter and 1 m in length. The latest developments, including a list of components required for the upgrade (e.g., mass-flow orifice, superconducting transformer, background field coils, etc.), as well as the first test samples, such as superconducting switches and HTS coil windings, will be discussed in this work.

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