



In-house Industrial Production of the Superconducting Conductor for the 43T Hybrid Magnet

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Abstract: By combining resistive inserts, made of Bitter and polyhelix coils, with a large bore superconducting "outsert", the hybrid magnet being built at LNCMI-Grenoble will produce in a first step, an overall continuous magnetic field of 43 T in a 34 mm warm bore aperture. The superconducting coil will provide a nominal magnetic field of 8.5 T in a 1.1 m cold bore diameter. It relies on the novel development of a Nb-Ti/Cu Rutherford Cable On Conduit Conductor (RCOCC) cooled down to 1.8 K by a bath of superfluid helium at atmospheric pressure. The novelty of the RCOCC development concerns the assembly and the induction soft-soldering of the Rutherford cable on the Cu-Ag hollow stabilizer allowing a strict control of the interstrand contact resistance.

Assembly line installed at LNCMI

