



Contribution ID: 333 Contribution code: TUE-OR1-304-01

Type: Invited Oral

[Invited] Status of the Pulsed-Magnet Program at the Dresden High Magnetic Field Laboratory

Tuesday, 16 November 2021 10:00 (15 minutes)

The Dresden High Magnetic Field Laboratory (HLD) is a pulsed-field user facility which provides external and in-house researchers with the possibility to perform a broad range of experiments in pulsed magnetic fields [1]. Being a member of the European Magnetic Field Laboratory (EMFL), HLD provides access and supports more than 100 scientific projects annually. At the HLD, such diverse high-resolution experimental techniques as electrical transport, magnetization, ultrasound, magnetostriction, magnetic resonance (ESR and NMR), permittivity, magnetocaloric effect, and high-field infrared spectroscopy in pulsed magnetic fields are available for users.

The Dresden High Magnetic Field Laboratory operates ten experimental cells equipped with a variety of pulsed magnets energized by two independent, modular capacitor banks with maximum stored energies of 50 and 14 MJ at 24 kV maximum operational voltage. The pulsed magnets at the HLD are subject of permanent improvements in terms of peak field, reliability, noise level, cooling time, and longevity. A number of pulsed-field magnets specialized for needs of some advanced experimental techniques are under design now. We discuss current pulsed-magnet upgrades, design improvements, and our operational experience obtained with the pulsed magnets at the HLD. We report the status of a triple-coil magnet, designed to reach repeatedly 100 T.

We acknowledge the support of the HLD at HZDR, a member of the European Magnetic Field Laboratory (EMFL), the DFG via SFB 1143, and the BMBF via DAAD (project-id 57457940).

[1] <http://www.hzdr.de/hld>

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Session Classification: TUE-OR1-304 Resistive and Pulsed High-Field Magnets