
Contribution ID: **1061** Contribution code: **THU-OR5-301-02** Type: **Invited Oral**

# [Invited] Status of the HFML-Nijmegen 45 T Hybrid Magnet

*Thursday 18 November 2021 18:45 (15 minutes)*

To extend its user's facilities the High Field Magnet Laboratory (HFML) of the Radboud University is in the process of building a 45 T hybrid magnet. The magnet system will consist of a 22 MW, 32.7 T Florida-Bitter type of resistive insert and a 600 mm bore, 12.3 T Nb3Sn based CICC type of superconducting outsert magnet. The Nijmegen hybrid magnet will be operated with separate current sources for the superconducting and resistive coils (20 kA at 10 V, and 40 kA at 550 V, respectively). The superconducting outsert coil was wound, heat-treated and impregnated at the National High Magnetic Field Laboratory (FL, USA) and arrived in 2018 in Nijmegen. At present, system assembly and integration near completion, all auxiliary systems are in place and are going through their final commissioning phase. In this paper, we present the status of the cryostat, the binary (Cu/BSCCO) current leads jointly developed by HFML and NHMFL, the cryogenic and electro-technical installations, system control, quench and coil protection and the manufacturing process of the resistive insert. We particularly highlight implemented new concepts for the mechanical support systems of both the insert and the outsert coils.

**Primary author:** Mr DEN OUDEN, Andries (HFML, Radboud University, Nijmegen, The Netherlands)

**Co-authors:** Mr WULFFERS, Chris (High Field Magnet Laboratory (HFML-EMFL), Radboud University, Nijmegen, the Netherlands); Mr LAUREIJS, Gideon (High Field Magnet Laboratory (HFML-EMFL), Radboud University, Nijmegen, the Netherlands); Mr PETERS, Bas (High Field Magnet Laboratory (HFML-EMFL), Radboud University, Nijmegen, the Netherlands); Mr DE BRUIN, Tim (High Field Magnet Laboratory (HFML-EMFL), Radboud University, Nijmegen, the Netherlands); Dr WIJNEN, Frans (High Field Magnet Laboratory (HFML-EMFL), Radboud University, Nijmegen, the Netherlands); Dr PERENBOOM, Jos (High Field Magnet Laboratory (HFML-EMFL), Radboud University, Nijmegen, the Netherlands); DIXON, Iain (Florida State University); BIRD, Mark (FSU)

**Presenter:** Mr DEN OUDEN, Andries (HFML, Radboud University, Nijmegen, The Netherlands)

**Session Classification:** THU-OR5-301 High Field Magnet