



Contribution ID: 599 Contribution code: TUE-PO1-305-04

Type: **Invited Poster**

## [Invited] Conceptual Design Study of the Outsert superconducting Coils of the Hybrid Magnets

*Tuesday, 16 November 2021 13:15 (20 minutes)*

As a part of a conceptual design study for developing more higher magnetic field hybrid magnet, an outsert low temperature superconducting coils which can generate about 14 T magnetic field is being developed at the High Magnetic Field Laboratory of the Chinese Academy of Sciences. The superconducting outsert with a room temperature bore diameter of 1800 mm is composed of Nb<sub>3</sub>Sn coils and NbTi coils wound from four grades of cable-in-conduit conductor cooled with forced-flow supercritical helium at an inlet temperature of 4.5 K. This work presents the magnetic and the structural assessment of the performance of the superconducting outsert. The objective of the design process is to obtain a coil that is capable of providing the required magnetic performance while being structurally compliant. The overall design concept and preliminary results of electro-magnetic, structural, and thermo-hydraulic analysis are presented.

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**Session Classification:** TUE-PO1-305 HTS/LTS coil