MT25 Conference 2017 - Timetable, Abstracts, Orals and Posters



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## FCC-hh Detector Magnet Cryostats and Cold Mass Suspension system

Monday 28 August 2017 13:15 (1h 45m)

The baseline design of the FCC-hh detector magnet system with 14 GJ stored energy and providing 4 T for particle tracking, comprises 3 large size superconducting solenoids. The main solenoid is 20 m long and has a 10 m free bore, while the so-called forward solenoids have a free bore of 2.6 m and a length of 4.2 m. The designs of the cryostats take into consideration not only vacuum and cold mass weights of 1.05 kt and 0.048 kt respectively, but also those specific for the detector such as the high weight of 4.6 kt of the calorimeters and trackers resting on the bore tube. A specific challenge in the design is to choose the type of cold mass supports since these entails an important mechanical local load on the cryostat. The choice of materials and their properties has significant impact on both heat load by conduction and strain in the tie rods. The design of both vacuum vessels and suspension systems of these very large magnets will be presented. Also an estimate of the various heat loads seen by the cold masses are provided.

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