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P3.099 Design of the support structures of the DTT magnet system

Wednesday, 19 September 2018 11:00 (2 hours)

DTT is the acronym of “Divertor Tokamak Test” facility, a project for a compact but flexible tokamak reactor which has been conceived in the framework of the European Fusion Roadmap. It will be built in Italy and shall act as a satellite experimental facility to integrate the extrapolation of the ITER results to the EU-DEMO machine. It is thus mainly aimed at the exploration of different divertor solutions for power and particles exhaust, and to study the plasma-material interaction scaled to long pulse operation. The conceptual design of the magnet system is currently under development and it will define all the characteristics for TF, CS and PF superconductive coils. The magnets must be supported in order to balance the gravitational and magnetic forces. This is achieved with five types of mechanical structures: gravity supports, pre-compression structures, inner inter-coil structures, outer inter-coil structures and centering structures. In the present work it will be reported the design choices along with the analyses and optimization studies lead to the definition of all the five types of support systems.

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