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Current Status and Progress on the Shield Blanket Design of CFETR Reactor

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The main function of the CFETR shield blanket (SB) system is to provide the neutron shielding capability for the in-vessel components and the external environment. The SB concept design has been carried out during the 2009-2011 campaign. The current design on the SB system is concentrated on the neutronics analysis, the SB modules design, and the mechanics analysis using finite element method (FEM). The neutronics analysis on the SB thickness estimation in radial direction and the neutron shielding performance on the shield materials is carried out. The two kinds of SB module structure are taken into account respectively, which are mainly for exploring the heat removal capability comparing for the SB cooling channel system. In addition, the mechanics analysis is made on the structure static stress and the electronmagnetic (EM) force considering the core plasma disruption. This paper summarizes the SB components design activities and the progress at present status.

Eligible for student paper award?

No

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