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Plasma Disruption Simulations for the Assessment of the Ignitor Plasma Chamber Design* G. RAMOGIDA, ENEA, A. BIANCHI, Ansaldo Nucleare, B. COPPI, MIT — The Ignitor Plasma Chamber is designed on the basis of available information about the electro-magnetic (EM) loads coming from relevant experiments and the increasingly accurate numerical models of the eddy and halo currents produced by disruption events. The recently achieved success in the active control of disruptions is also considered as a valuable safety factor in the present design of the plasma chamber. A set of plasma disruption simulations was carried out to verify that the Plasma Chamber can withstand structurally, with proper margins, the EM loads during off-normal events, to complete the assessment of its compliance with the ASME rules and to identify the safe limits of operation that will be targeted by the disruption mitigation system. For this purpose the worst expected plasma disruption, the Vertical Displacement Event at full plasma current, was extensively simulated varying the current decay rate, the halo current region extension and the safety factor limit when the thermal quench occurs. *Sponsored in part by ENEA of Italy and by the U.S. D.O.E.

Bruno Coppi
MIT

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