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Structural Analysis of the Ignitor Load Assembly* A. BIANCHI, B. PARODI, Ansaldo Ricerche, Italy, A. CUCCHIARO, G. CELENTANO, G. CENACCHI, C. CRESCENZI, P. FROSI, G. MAZZONE, A. PIZZUTO, G. RAMOGIDA, M. ROCCELLA, ENEA, Italy, B. COPPI, M.I.T. — The structural analysis of all components of the Ignitor machine, and of their mechanical interactions, has been performed by using the Finite Element Method and ANSYS program for the most advanced plasma scenarios. Friction coefficients have been taken into account at the interfaces between relevant components. The results show that the stresses produced are within the allowable limits at the considered temperatures of the magnet. The out-of-plane loads were carefully evaluated by means of a dedicated code developed in ENEA, both for the reference operating scenario and for the worst plasma disruption. The disruption scenario chosen as representive of the most dangerous plasma conditions in Ignitor is a Vertical Displacement Event followed by a fast thermal and current quench, simulated by the MAXFEA code. The resulting loads were also confirmed by the ANSYS code. The average shear stress at the toroidal field coil interfaces due to these out-of-plane loads is lower than the friction coefficient and do not increase significantly the in-plane maximum equivalent stresses.
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☐ Prefer Oral Session
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Special instructions: Ignitor poster session #9

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