

Abstract Submitted  
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**First Wall Design for the IGNITOR Machine\*** A. CUCCHIARO, ENEA, Italy, P. FROSI, A. PIZZUTO, G. MADDALUNO, G. RAMOGIDA, A. BIANCHI, Ansaldo, Italy, B. PARODI, F. LUCCA, L.T.C., Italy, A. MARIN, B. COPPI, MIT — A detailed 3D finite element model has been developed in order to evaluate the electromagnetic loads on the (mechanical) carriers of the tiles that constitute the First Wall of Ignitor during a reference Vertical Disruption Event. A thermo- structural analysis of the most stressed tile carrier with a cycled load has been completed. The study employed a non-linear ANSYS Code. The results show a temperature increase up to 341°C for a single step of 4 sec. The stresses and deformations on the component which has undergone a cycled load are within the limits of the allowable values. The design layout of the First Wall has been finalized, taking into account all requirements of the IGNITOR Machine. The electrical diagnostics placed inside the plasma chamber have been included in the tile carrier design. The First Wall has been tailored with special consideration for the Faraday Shield facing the ports through which ICRH is injected.

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