

Abstract Submitted
for the DPP06 Meeting of
The American Physical Society

Structural Assessment of the Central Solenoid of IGNITOR¹

G. RAMOGIDA, ENEA, Italy, A. CUCCHIARO, A. PIZZUTO, A. BIANCHI, Ansaldo, Italy, G. GALASSO, B. PARODI, B. COPPI, MIT — A thermo-mechanical analysis of the Central Solenoid of Ignitor has been carried out using the ANSYS code based on a linear 3D Finite Element model. The adopted model takes into account the insulation layers and the epoxy resin fillings required by the coil design. The structural assessment considers, in particular, the transient conditions at both the beginning of the plasma current pulse (heating) and during the cooling phase of the solenoid that follows the end of the plasma current pulse. This transient which causes high shear stresses on the insulation material has led to the design of an optimized feeder connection. The stresses under the most critical conditions (start-up) are within the allowable values found by tests carried out by Ansaldo.

¹Sponsored in part by ENEA of Italy and by the U.S. DOE.

B. Coppi
MIT

Date submitted: 21 Jul 2006

Electronic form version 1.4