

Abstract Submitted  
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**TRANSP/PTRANSP Isolver Free Boundary Equilibrium Solver**

ROBERT ANDRE, PPPL — The Isolver equilibrium solver runs within TRANSP/PTRANSP to provide a free boundary equilibrium solution inside and outside the plasma boundary which is consistent with the coil and vessel geometry for use by the heating and transport modules. Originally developed in 2005 by J. Menard in IDL, it has been ported to Fortran 95 and used as an alternative to the prescribed boundary equilibrium solvers in TRANSP/PTRANSP. It has been enhanced to enable the use of measured coil currents, the modeling of vessel currents and poloidal field circuit currents and the time evolution of the plasma current through resistive flux diffusion. This poster describes the capabilities of Isolver as implemented in TRANSP/PTRANSP, the basic algorithms used in Isolver and results of verification with TSC.

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