Modeling Tokamak Discharges During Startup and Termination in DIII-D and Predictions for ITER,[*] RV Budny, R Andre, CE Kessel, D McCune, *PPPL;* GL Jackson, DA Humphreys, TC Luce, PA Politzer, *General Atomics* — The PTRANSP code is being developed for improved predictions of ITER and future tokamaks [1]. Important goals are predicting plasma performance as well as safe and efficient startup and termination. PTRANSP is being tested on experiments in DIII-D to explore plasma startup and termination, and to benchmark transport [2]. An important aspect is to model the boundary accurately since parameters such as the boundary flux and l_i can vary sensitively on the boundary shape. PTRANSP is being modified to allow for direct input of the flux in R, Z space (from EFIT) instead of using Fourier moments of the boundary. PTRANSP will write quantities such as the inductance and voltage at the separatrix surface as well as the usual outer flux boundary. The predictive capabilities are being improved also. These include models for predicting temperatures, densities, and toroidal momentum. Predictions for ITER will be included.

[1] RV Budny, Nucl. Fusion **49**, 085008 (2009).
[2] GL Jackson, et al., this conference.