

**Abstract Submitted for the 51st Annual Meeting
Division of Plasma Physics
November 2–6, 2009, Atlanta, Georgia**

Correlation Between Density Pump-out and Free Streaming Particle Transport in Low Collisionality Resonant Magnetic Perturbation H-modes,* S. Mordijck, R.A. Moyer, *UCSD*, E.A. Unterberg, *ORISE*, T.E. Evans, *GA* — Experimental pedestal density data shows a decrease in the gradient within the transport barrier during RMP H-mode, as compared to an ELMing H-mode. Recent modeling, with SOLPS5 and TRIP3D, indicates that this change is the result of an increase in particle transport. This increase in transport is the consequence of the creation of open field lines inside the traditional separatrix. The magnitude ($\sim 0.1 \text{ m}^2/\text{s}$) and radial extent of this free-streaming transport are well correlated with experimental changes. In this paper, we present a more systematic study, where we compare the increase in particle transport calculated with TRIP3D, directly with the changes in pedestal density. We notice that the experimental density pump-out during RMP H-mode is linearly correlated with the increase in free streaming transport for low collisionality plasmas.

*Work supported by the US DOE under DE-FG02-08ER54984, DE-DE-AC05-06OR23100, and DE-FC02-04ER54698.