Abstract Submitted
for the DPP15 Meeting of
The American Physical Society

**Alfven Eigenmode Stability and Fast Ion Transport in High $q_{min}$ Steady State Discharges on DIII-D**[1] G.J. KRAMER, B. GRIERSON, N.N. GORELENKOV, R. NAZIKIAN, W. SOLOMON, PPPL, C.T. HOLCOMB, LLNL, J.R. FERRON, M.A. VAN ZEELAND, GA, C. COLLINS, W.W. HEIDBRINK, UC-Irvine — A wide range of Alfven eigenmode (AE) activity and beam ion loss is observed in high $q_{min}$ steady state target plasmas on DIII-D. Modeling the losses with the NOVA-k code and the Critical Gradient Model indicates that the observed reduction in the neutron signal, usually up to 20%, can be attributed to the AEs. In those high qmin reversed shear discharges both normal shear and reversed shear AEs are excited. The normal shear AEs can be suppressed by increasing the pressure gradient or increasing the q(0). However, the reversed shear AEs emerge from the Alfven continuum above a critical pressure gradient. It will be shown that both the normal and reversed shear AEs can be suppressed or their effects strongly mitigated by raising q(0) and moving qmin to larger radius. This prediction is consistent with observations in DIII-D EAST SS plasmas.

[1]Supported by US DOE No. DE-AC02-09CH11466, DE-AC52-07NA27344, DE-FG02-97ER54415, DE-FC02-04ER54698, SC-G903402.

G.J. Kramer
Princeton Plasma Physics Laboratory

Date submitted: 22 Jul 2015 Electronic form version 1.4