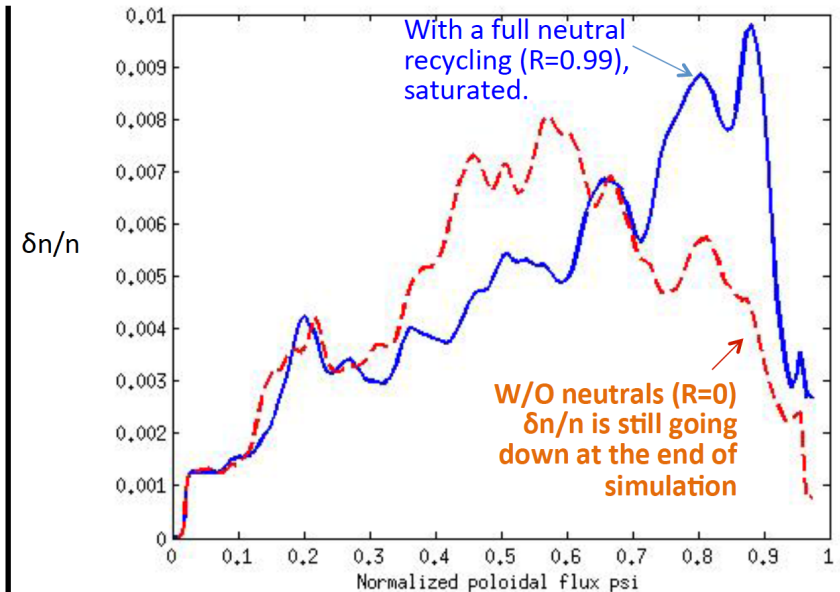


# Effect of neutral particles on pedestal-core turbulence and confinement

C.S. Chang, S. Ku, A. Diallo, S. Zweben

## Multiple Goals

- Validate the XGC1 discovery (R15-1)
  - ✧ Neutrals  $\rightarrow$  Steeper  $\nabla T_i$  and Weaker sheared ExB flow  $\rightarrow$  stronger edge turbulence  $\rightarrow$  lower  $T_{ped}$  ( $n_e$  could be higher from more ionization)
- How will neutrals from different divertor configurations affect L $\rightarrow$ H and pedestal confinement? (IR15-1, R16-1)
- How will SOL neutrals affect the core turbulence and confinement? (R15-3)
- Variation of neutral effect with  $v_{e^*}$ ? (R16-1)
- Will the neutrals from different locations affect L-H and pedestal differently: Divertor, outer wall, inner wall? (R15-3)



*Large difference in edge turbulence seen in XGC1 between zero and full neutral recycling.*

## Tools

- BES, GPI, reflectometry, Thompson, CHERS
- XGC1