

Nonlinear Simulations of e-ITBs*

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- Motivation
 - Explain observed T_e gradients, ne fluctuations during reversed shear e-ITBs
- Method
 - First NL GK sims of e-ITBs, many flux tubes, vary L_{Te} & s
 - Very expensive: > 5 million CPU hours
- Key Discoveries
 - $s < 0$: Strong nonlinear upshift of ETG gradient
 - $z_{crit_NL} > 3 * z_{crit_lin}$
 - up-down streamers, not on midplane
 - Nonlinearly driven by midplane ETG
- Conclusions
 - NL critical gradients consistent with e-ITBs
 - Streamers could explain bursty high-k signals
 - 2011 XP to look for them
 - Synthetic diagnostic analysis
 - Insight into ETG saturation mechanism, NL transfer