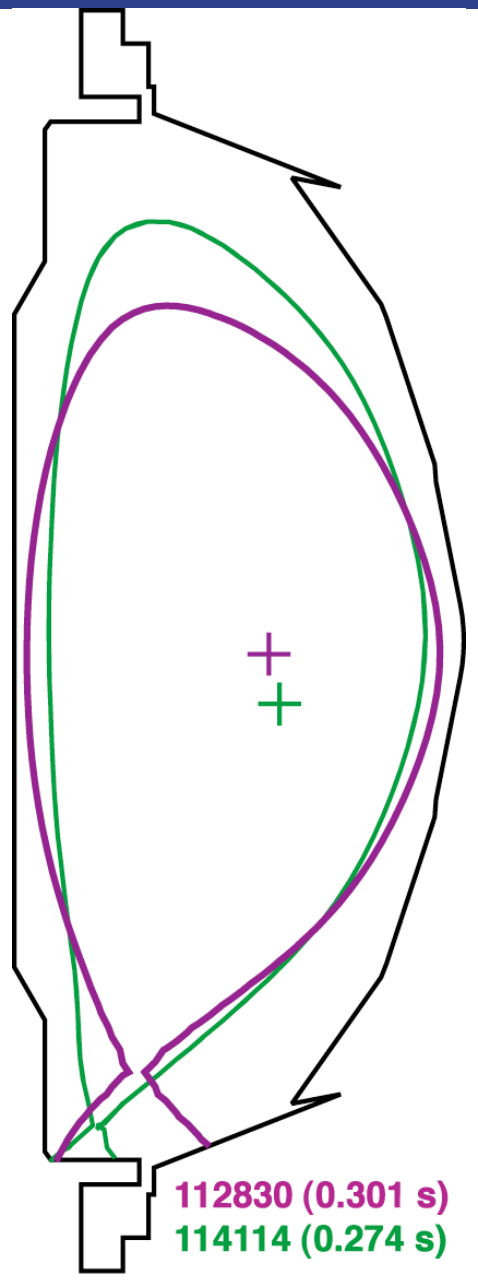
Plasma shape is a factor in edge / SOL studies

	112830 (PF2L)	114114 (PF1B)
κ	1.85	2.40
δ	0.47	0.74
drsep	-1.8	-1.0*
q_{edge}	13	9.5

- Separatrix and SOL width different in the two plasma shapes

- **PF1B coil LSN shape** (comp. to **PF2L**):
  - Plasma center is further out
  - Separatrix-wall distance (outer gap) smaller



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Midplane T_e, n_e profiles critical for UEDGE code edge transport modeling

- Edge transport in UEDGE is determined by matching experimental proiles
- Midplane plasma profiles are critical “upstream” parameters
- Holes in profiles around separatrix complicate modeling
- Examples from UEDGE modeling carried out by G. Porter (LLNL) - NSTX shots 109033, 109034, 109053 - all **PF2L** shape

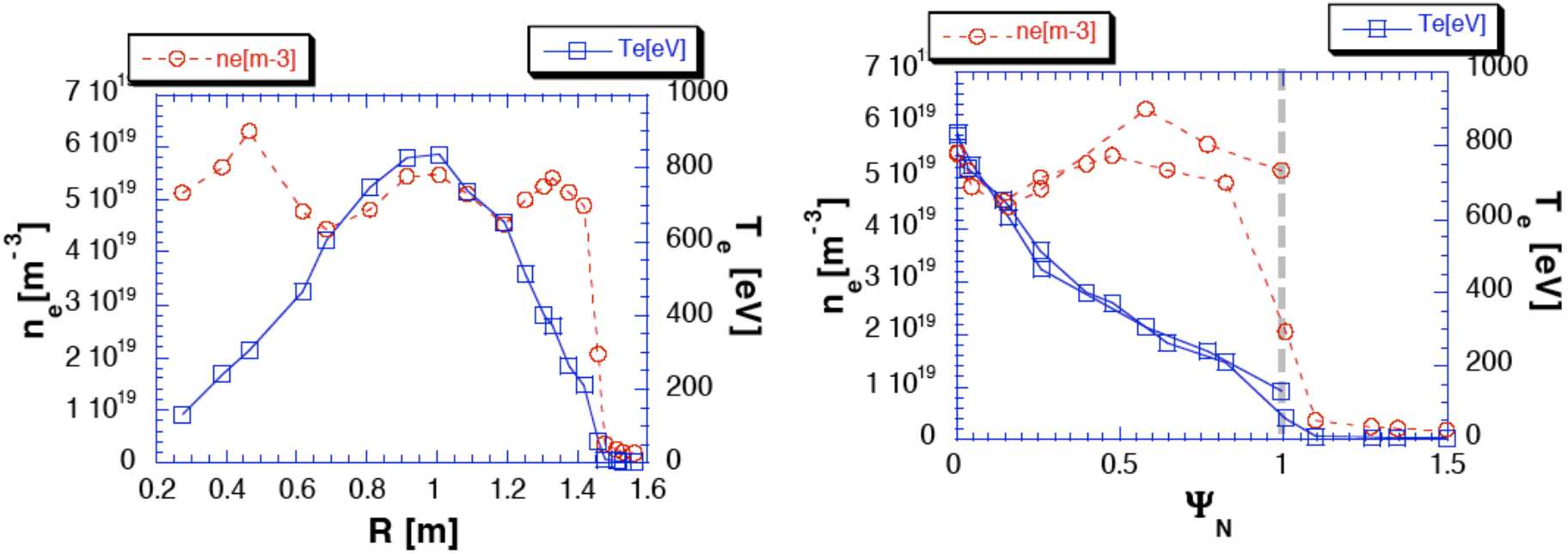

Figure 2-3 Radial profile of the MPTS data, and mapped to normalized poloidal flux using the Maingi EFIT.

Midplane T_e, n_e profiles critical for UEDGE code edge transport modeling

- Outer SOL profile from MPTS is used
- Example of bad situation: only one T_e, n_e point determines profile and gradient
- Need to fill in the holes!

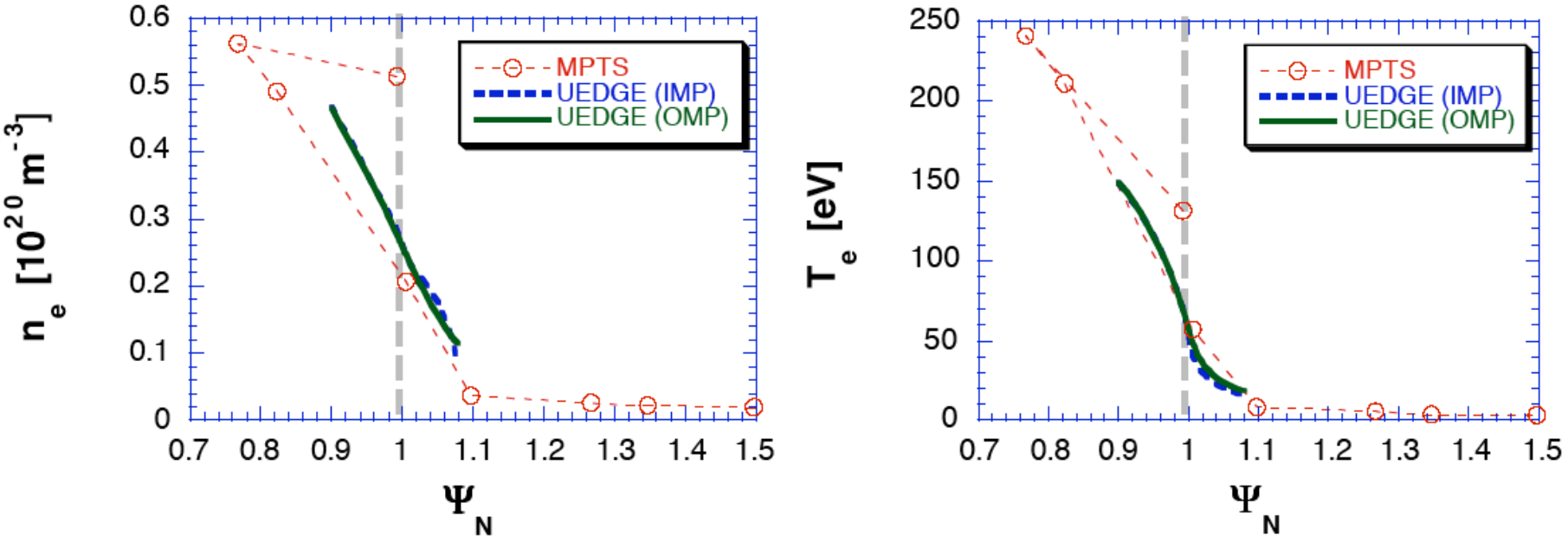

Figure 3-1 Comparison of upstream plasma profile with UEDGE simulation NSc03.

Midplane T_e, n_e profiles critical for UEDGE code edge transport modeling

- Outer SOL profile from MPTS is used
- Example of bad situation: only one T_e, n_e point determines profile and gradient
- Need to fill in the holes!

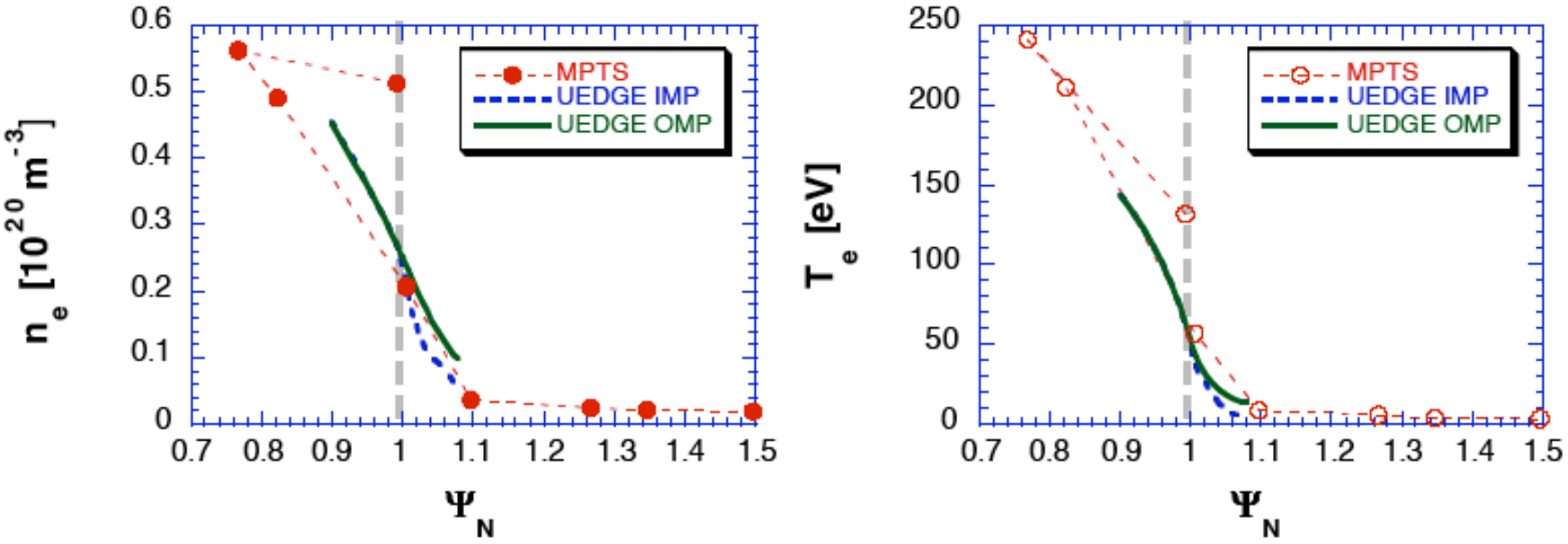

Figure 3-4 Comparison of upstream electron density and temperature profiles with UEDGE simulation NSc22.

Need to fill in holes in MPTS SOL profiles

- Proposed new radial array (in cm):
  …, 137.7, 139.9, 142.0, 144.0, 146.0, 147.8, 149.6, 151.3, 153.0, **???**, 156.2
- "**???**" would be useful for far-SOL transport studies
- Need systematic comparison between MPTS and UCSD fast probe