

Summary of XP822

**Field scaling of electron transport
change with heating power**

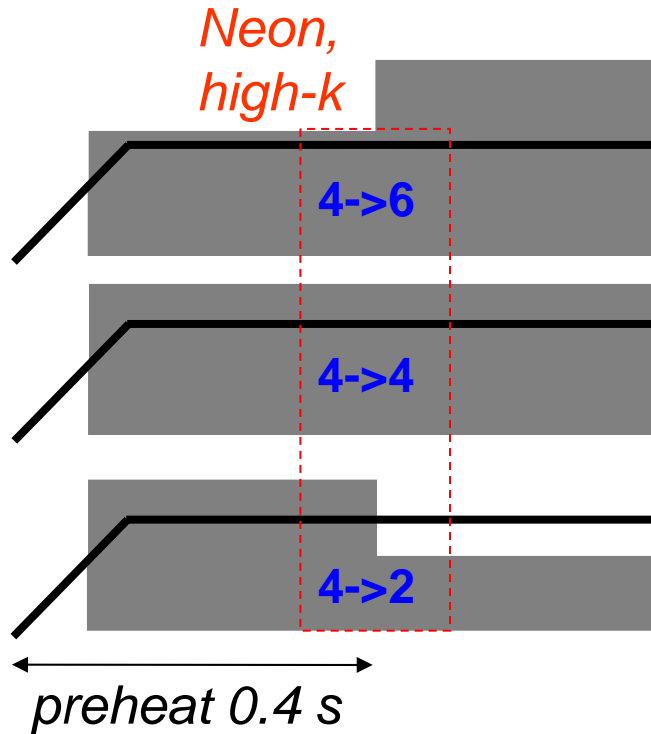
D. Stutman, L. Delgado, K. Tritz, M. Finkenthal

Johns Hopkins University

S. Kaye, M. Bell, R. Bell, B. LeBlanc, E. Mazzucato

PPPL

Goals: study χ_e change with P_b as a function of B_t

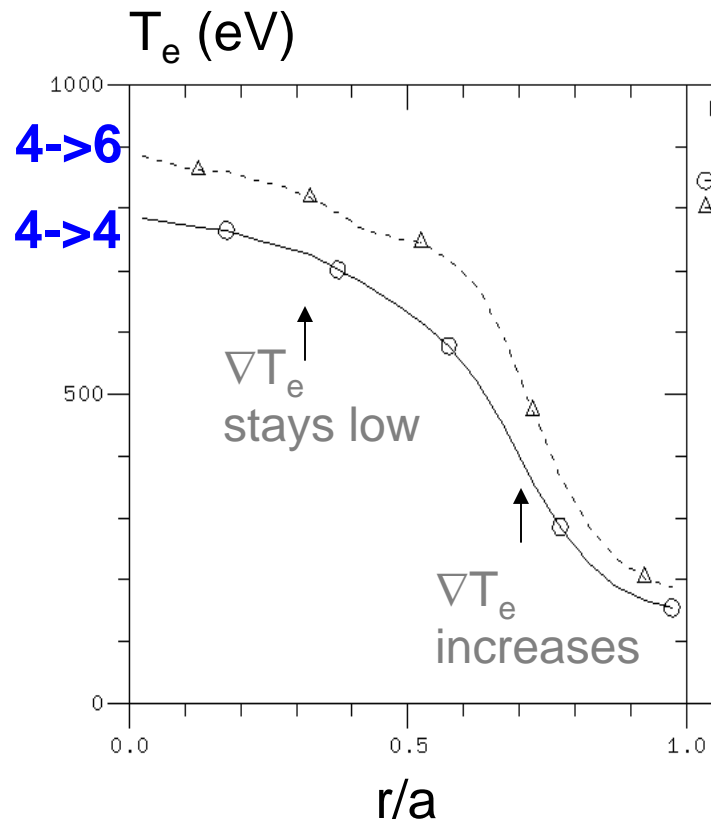


		P_{NB}	
B_t / I_p			
4.5/0.9	4->4	4->6	4->2 ← t=0.5, H-L
3.6/0.7	4->4	4->6	4->2
5.5/1.1	4->4	4->6	4->2
		Neon	
5.5/1.1	4->4	4->6	4->2
high-k	r/a=0.25	r/a=0.65	

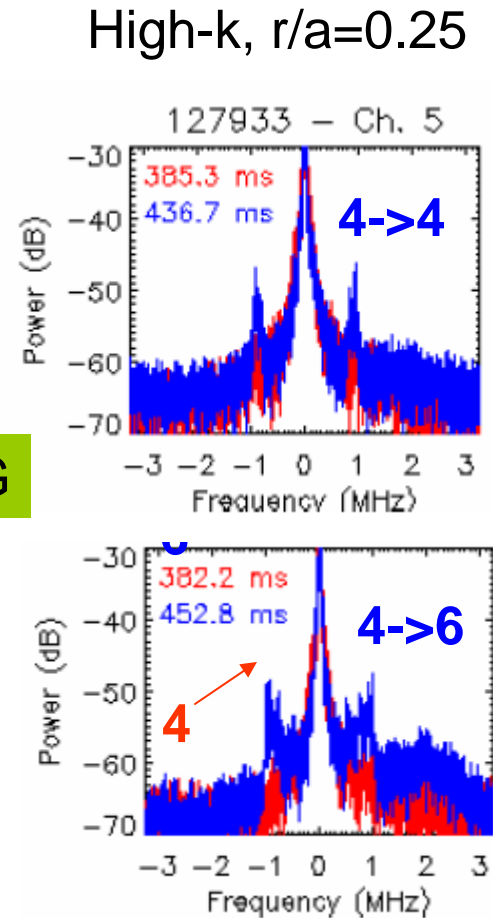
- Central T_e flattening, electron transport increase with P_b seen at 4.5 kG
- See how effect changes with B_t
- Check particle transport and high-k fluctuations at $r/a=0.25$ and $r/a=0.65$
- Technique: 'freeze-in' q-profile -> power steps -> B_t scan at fixed I_p/B_t
- Partly completed (1/2 effective run day, re-develop MHD free 4.5 kG shots)

T_e responds better at 5.5 kG, but central T_e still flat

5.5 kG

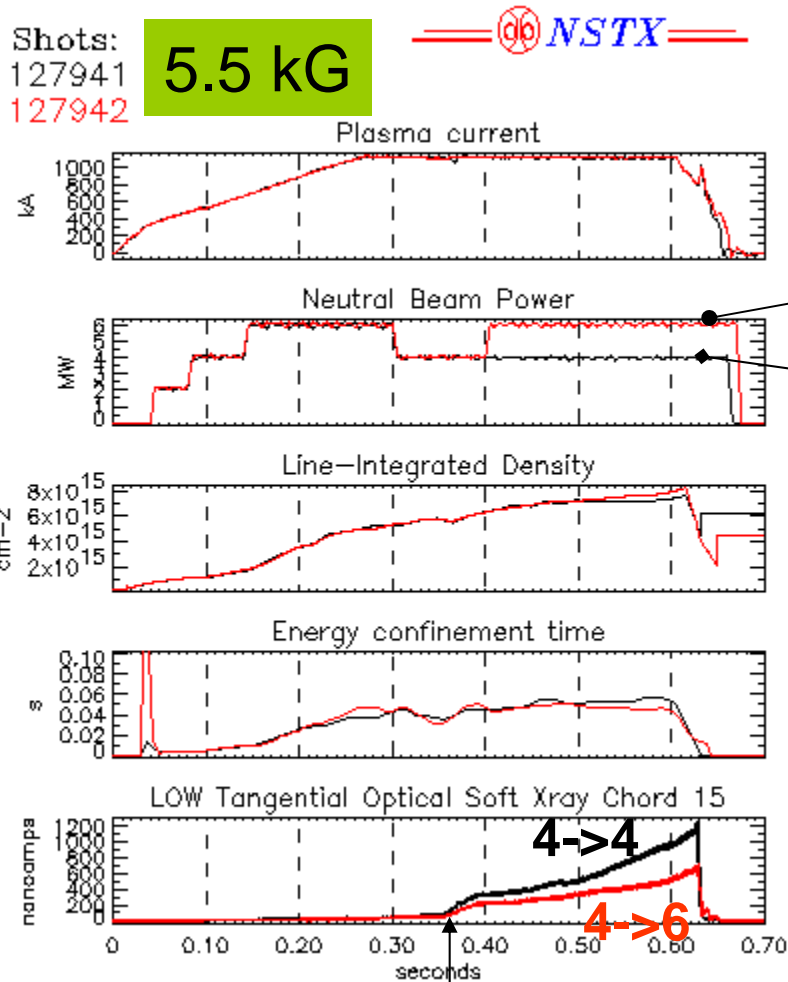


4.5 kG

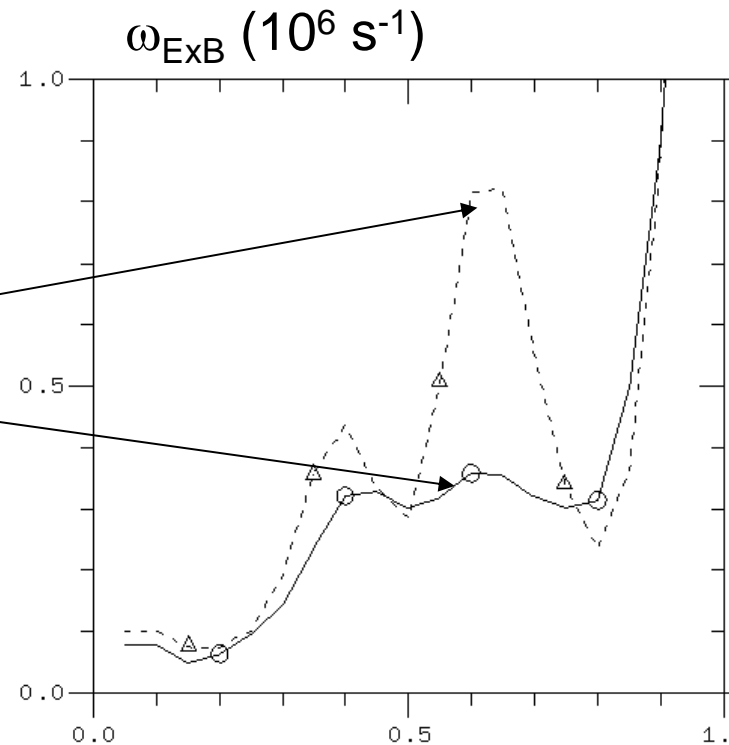


- Less central χ_e degradation at high field (prelim.), but transport still rapid
- Possibly significant change in high-k with P_b , in particular at low B_t

Ne transport possibly improves with P_b



Neon
injection (L. Delgado)



- Less Ne penetrates at 4-6 than at 4-4
- Consistent with higher ω_{ExB}
- Opposite trend to electrons further support to magnetic hypothesis
- Possibly ground-breaking results

1/2 run day needed to complete the XP

- Get high-k data for $r/a=0.65$
- Try to obtain 4-2 condition while staying in H-mode
- Neon injection for 4-2/5.5 kG case
- Time permitting, try 3.6 kG/0.7 MA condition