

Field scaling of electron transport change with heating power

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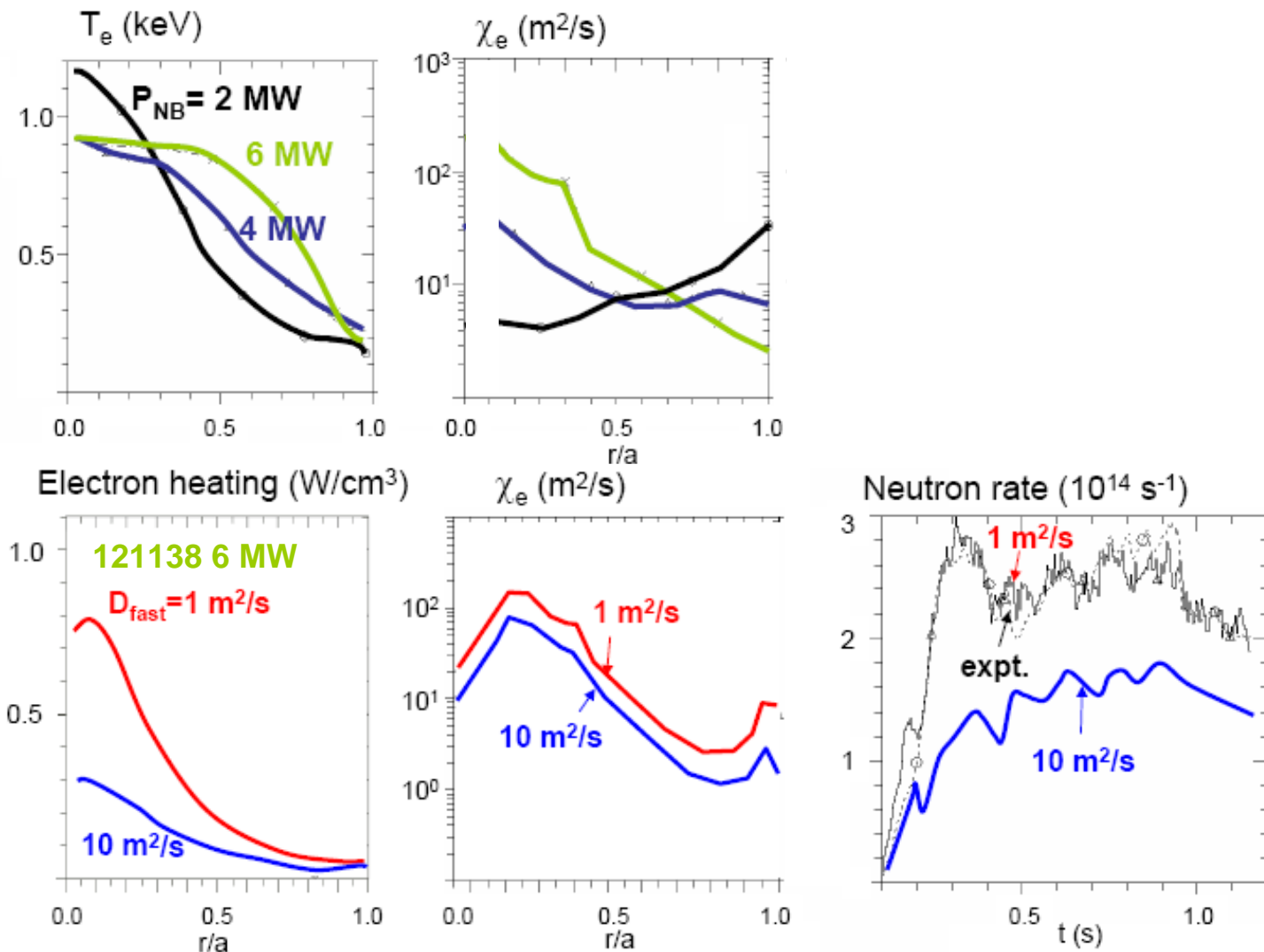
S. Kaye, B. LeBlanc, S. Medley, M. Bell, R. Bell

PPPL

R. Maingi

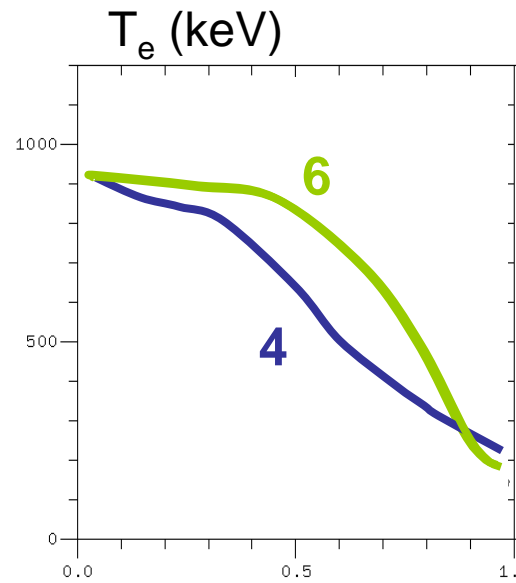
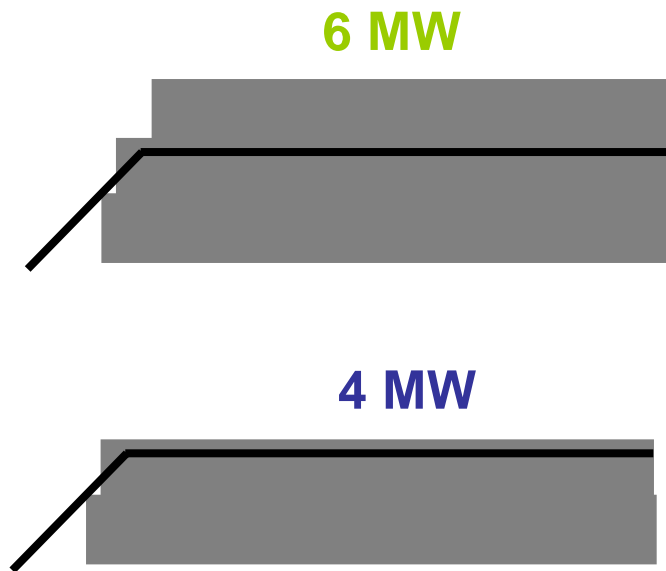
ORNL

Task I: Verify that T_e broadening not fast ion effect



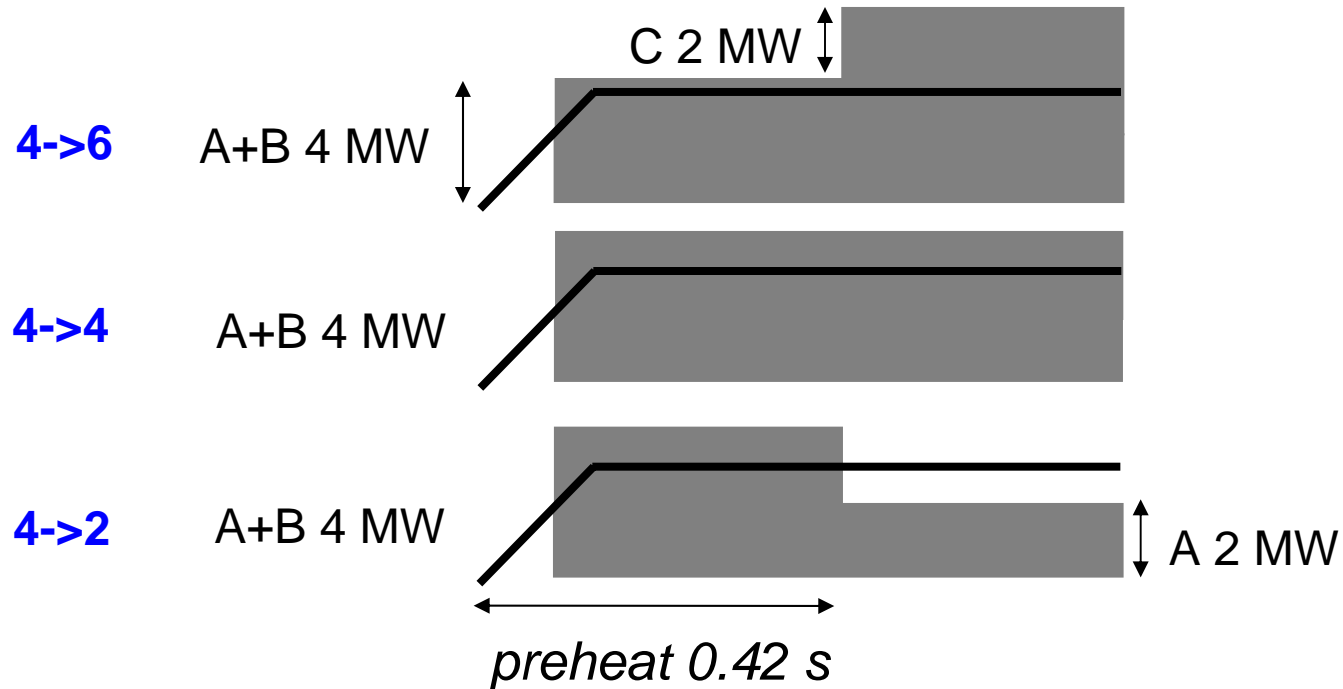
- Order of magnitude increase in D_{fast} does not change χ_e much, while neutron rate decreases well below experiment
- Conclusion holds even when D_{fast} increase limited to $r/a < 0.5$

NPA scan at different P_{NB}



- Check if T_e broadening not due to fast ion redistribution
- Preliminary run time, or separate XP; ISD ?
- If genuine electron transport effect, proceed to Part II

Task II: How χ_e changes with P_{NB} as a function of B_t



- Use recipe from XP 612 to change electron heating at fixed q , n_e , ω_{ExB}
- Step P_{NB} at different B_t , while keeping I_p/B_t fixed:
 - 0.45 T/1 MA: 4->6, 4->4, 4->2 (re-establish baseline)
 - 0.55 T/1.2 MA: 4->6, 4->4, 4->2
 - 0.36 T/0.8 MA: 4->6, 4->4, 4->2

- 1) any development work/results needed prior to running the XP: **NPA SCANS**
- 2) when in the run the XP can be carried out:
AS SOON AS MACHINE, BEAMS, DIAGNOSTICS (HIGH-K) OPERATIONAL
- 3) whether Lithium is needed, or should be avoided: **TO BE AVOIDED**
- 4) target dates for the TSG discussion of the XP specifics and final review:
MID/END JANUARY