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Controlled Lithium deposition scan with LLD

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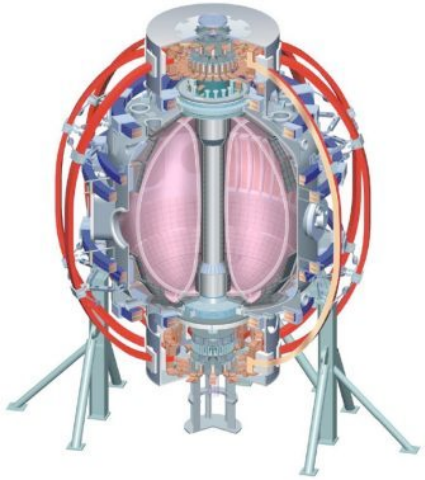
R. Maingi, Oak Ridge National Laboratory

For T. Gray, J. Canik

Lithiu, TSG group pre-research forum research forum
Princeton, NJ
Nov. 23, 2009



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Controlled Lithium deposition scan with LLD

- ELMs disappeared gradually in low δ discharges with increasing Li
- Main change in n_e and v_ϕ profiles
- Semi-analytic model predicts that n_e pedestal width should increase dramatically with decreasing edge density (at constant transport)
- This could represent biggest knob on edge n_e, pressure profiles, and thus ELM control
- Proposal: do 'controlled' lithium equivalent with LLD (how?) to study edge profile evolution

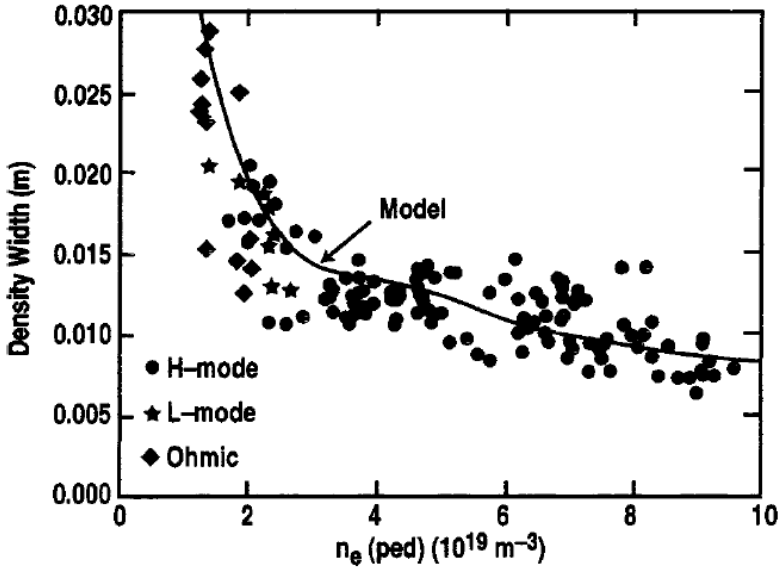
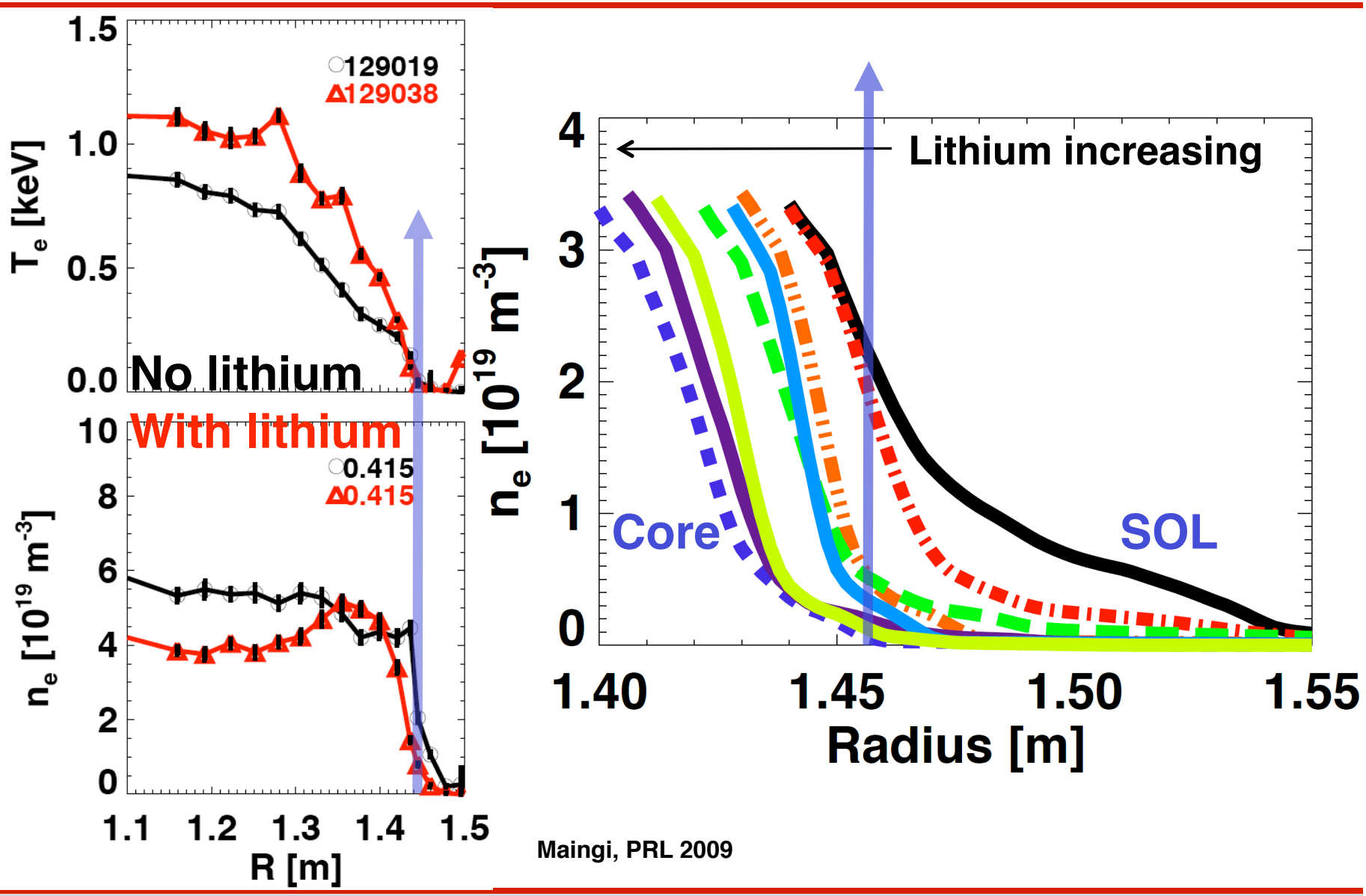


FIG. 4. A fit of the experimental data to the predictions of the analytic model density width projected to the outboard midplane.

M.A.Mahdavi, PoP 2003

Edge/SOL n_e decrease with lithium coatings thought to be responsible for ELM stabilization



Maingi, PRL 2009