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XP926: Characterization of magnetically triggered ELMs in lithium conditioned discharges

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Princeton, NJ
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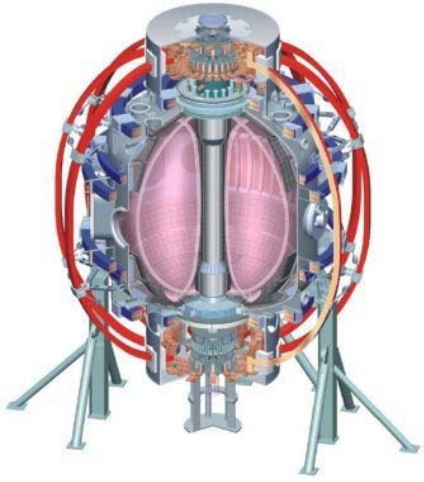
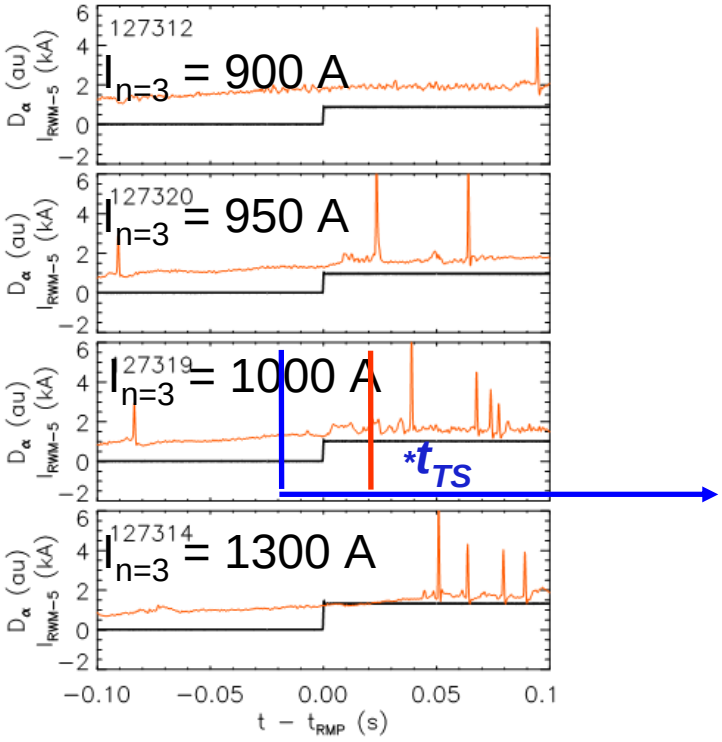


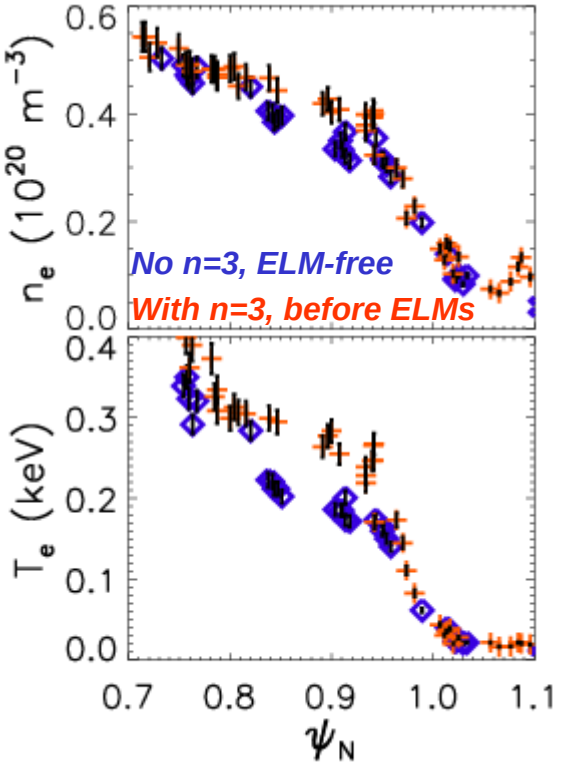
Older data on n=3 ELM-triggering, gathered *without* Li-conditioning

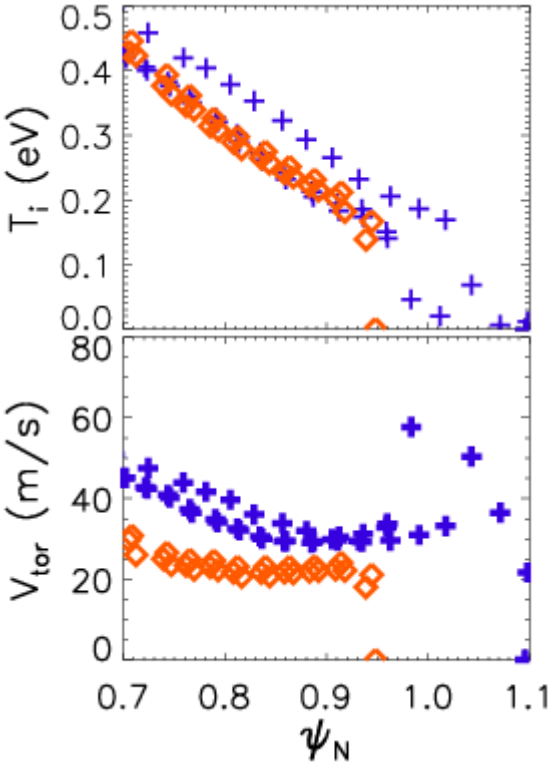
Threshold n=3 perturbation for triggering ELMs

Profile steepening seen after n=3, before ELMs

Goal of XP926 was to repeat these measurements with lithium conditioning

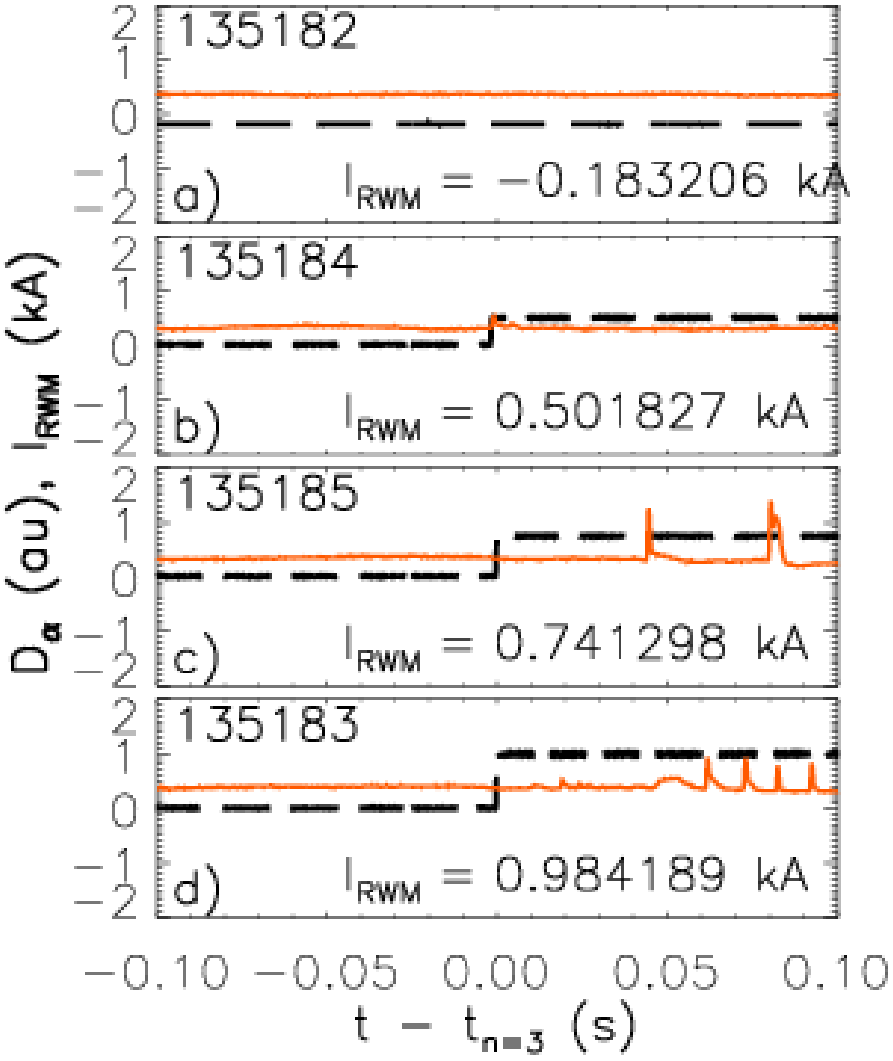






XP926: Triggering threshold was measured in Li-enhanced ELM-free H-mode

- Triggering threshold is between 500 and 750 A
  - Compare to ~950 A without Lithium (also higher kappa here)
- Series of ELMs are triggered using DC RWM waveform
  - Suggests that triggering is not due to jostling of edge currents from rapid changes in RWM current



Impact of n=3 field on pedestal profiles

Data combined from several shots, all before ELMs start

Color code: Just before n=3, 30 ms after, ~50/65 ms after

Edge ion temperature, toroidal rotation drop after n=3 field is applied

Te, ne show flattening from ψ_N ~0.8-0.9, similar gradient outside 0.9