

Characterization of HHFW Driven H-Mode Plasmas

XP-30

XP-33 Update

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with thanks to

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HHFW Driven H-mode Plasmas in NSTX

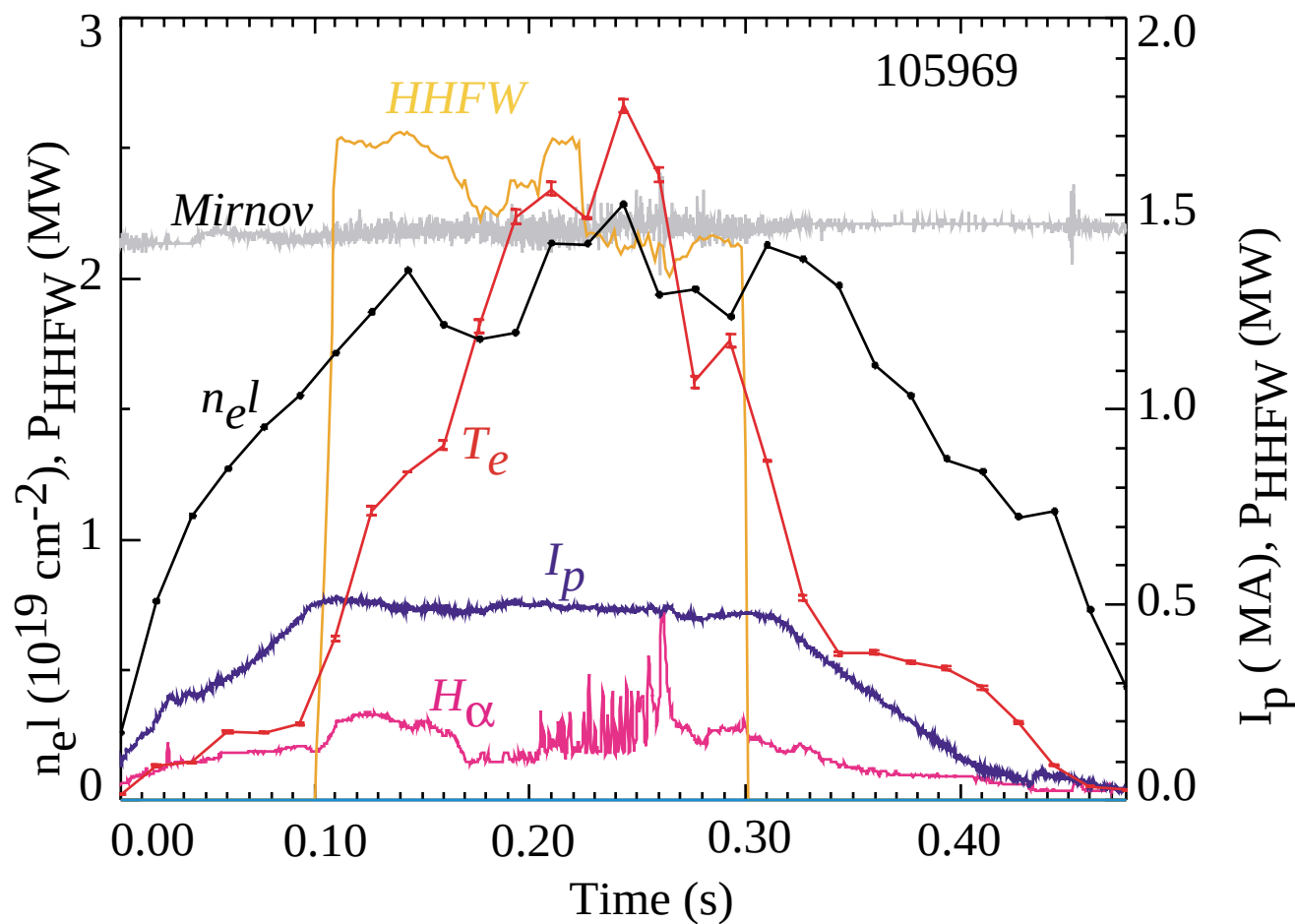
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- Observed in He and D plasmas.
- Standard H-mode signatures observed.
 - High edge n_e , T_e pedestal, H_α drop, E_{store} increase.
- So far, observed at 400 and 500 kA.
 - Operational MHD problem at 800 kA.
- So far, have tried 4.0 and 4.5 kG.
- Only 1/2 day dedicated to XP-33 up to now.

A Medium-duration HHFW H-mode Discharge

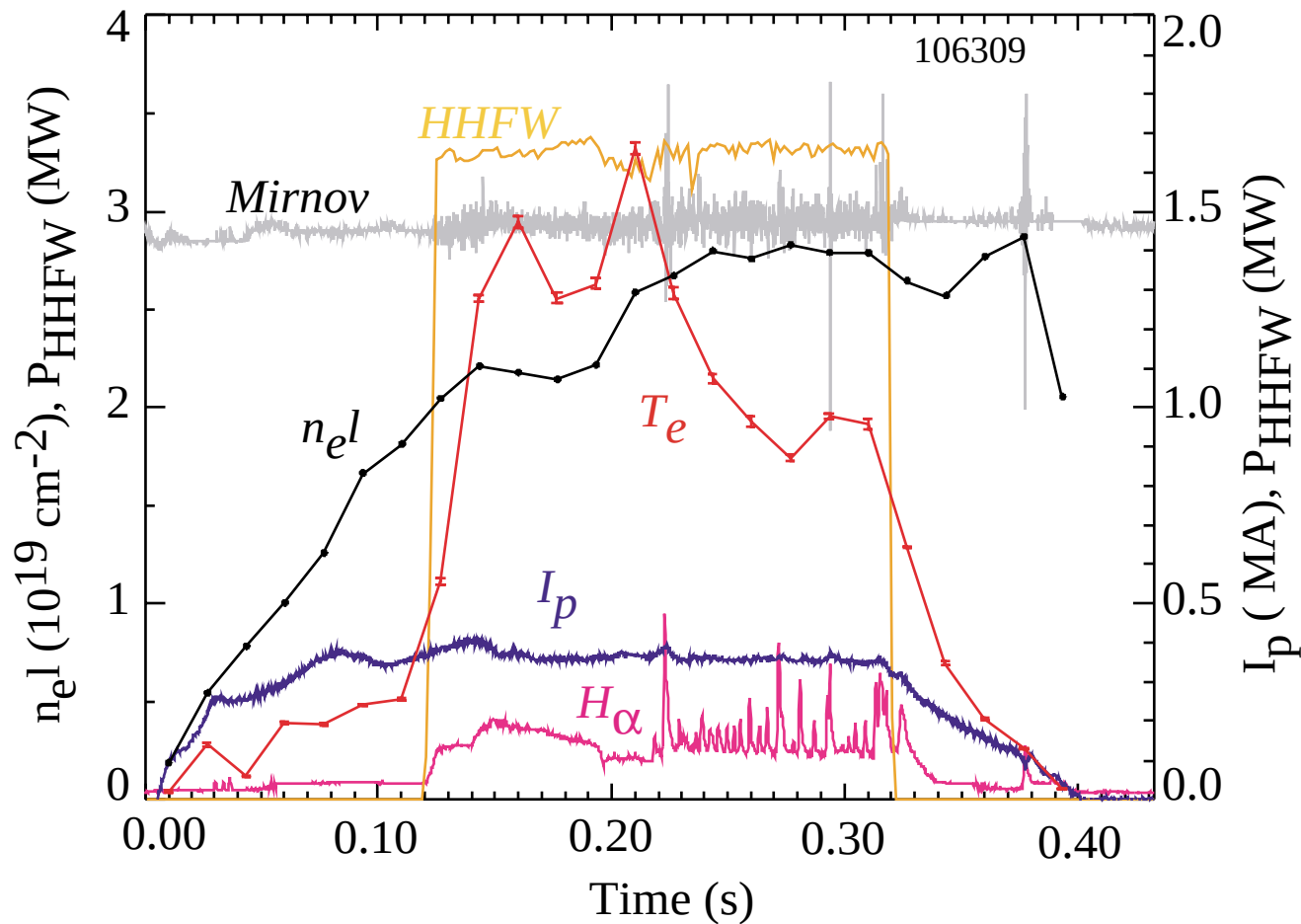
500 kA, Deuterium

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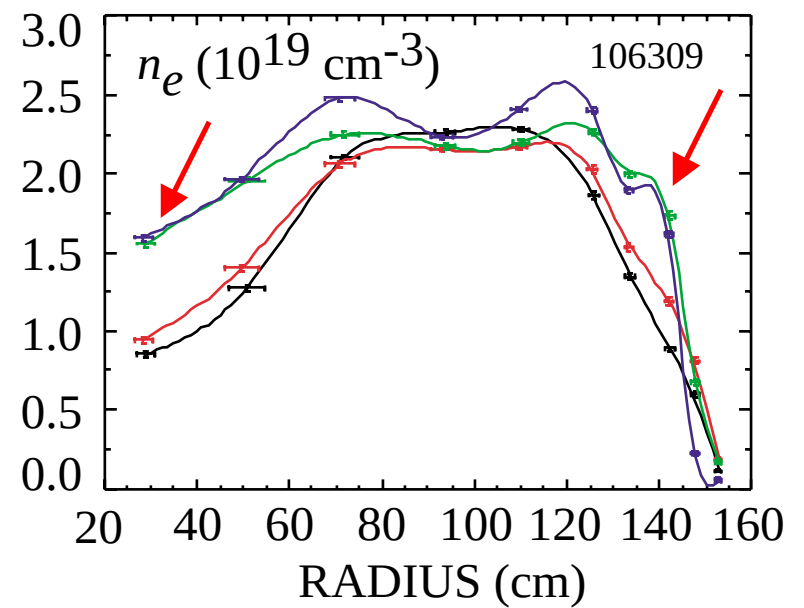
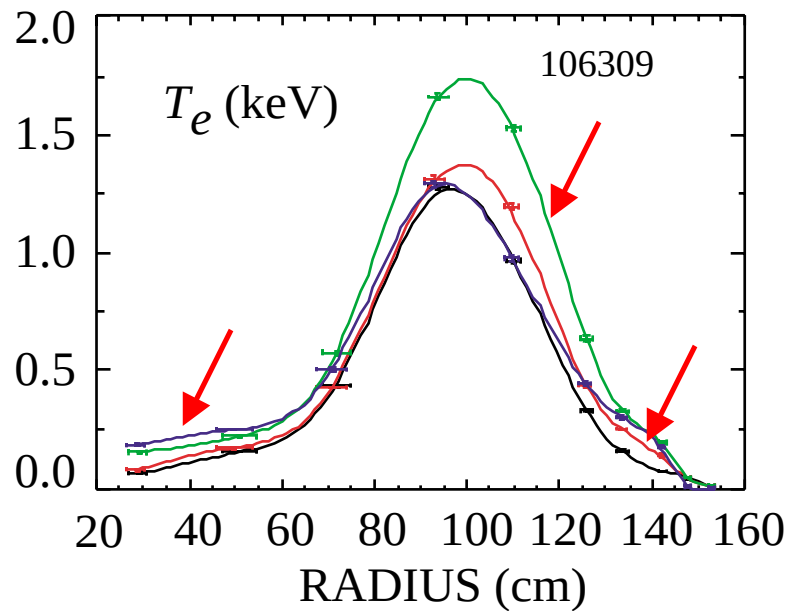
A Long-duration HHFW H-mode Discharge 370 kA, Deuterium

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$n_e(R)$ and $T_e(R)$ with H-mode Shape

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Experimental Plan/Goal

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- Expand operational range.
 - Can we find H mode at higher I_p (800 kA)?
 - Try lower field, 3.5kG.
- Can we increase density?
 - Center-stack gas puffer may help.
- Begin addressing H-mode physics issues.
 - Can we find a power threshold?
 - Rotation issues.
- CHERS via NBI multi blips for $T_i(R)$ and $v_{tor}(R)$.
- Core T_i from XR crystal spectrometer or NPA.