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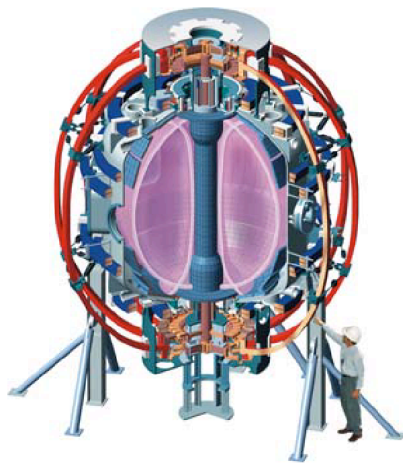
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Effect of Pitch Angle on MHD-induced Energetic Ion Redistribution or Loss using Neutral Particle Analyzer Vertical Scanning

S. S. Medley

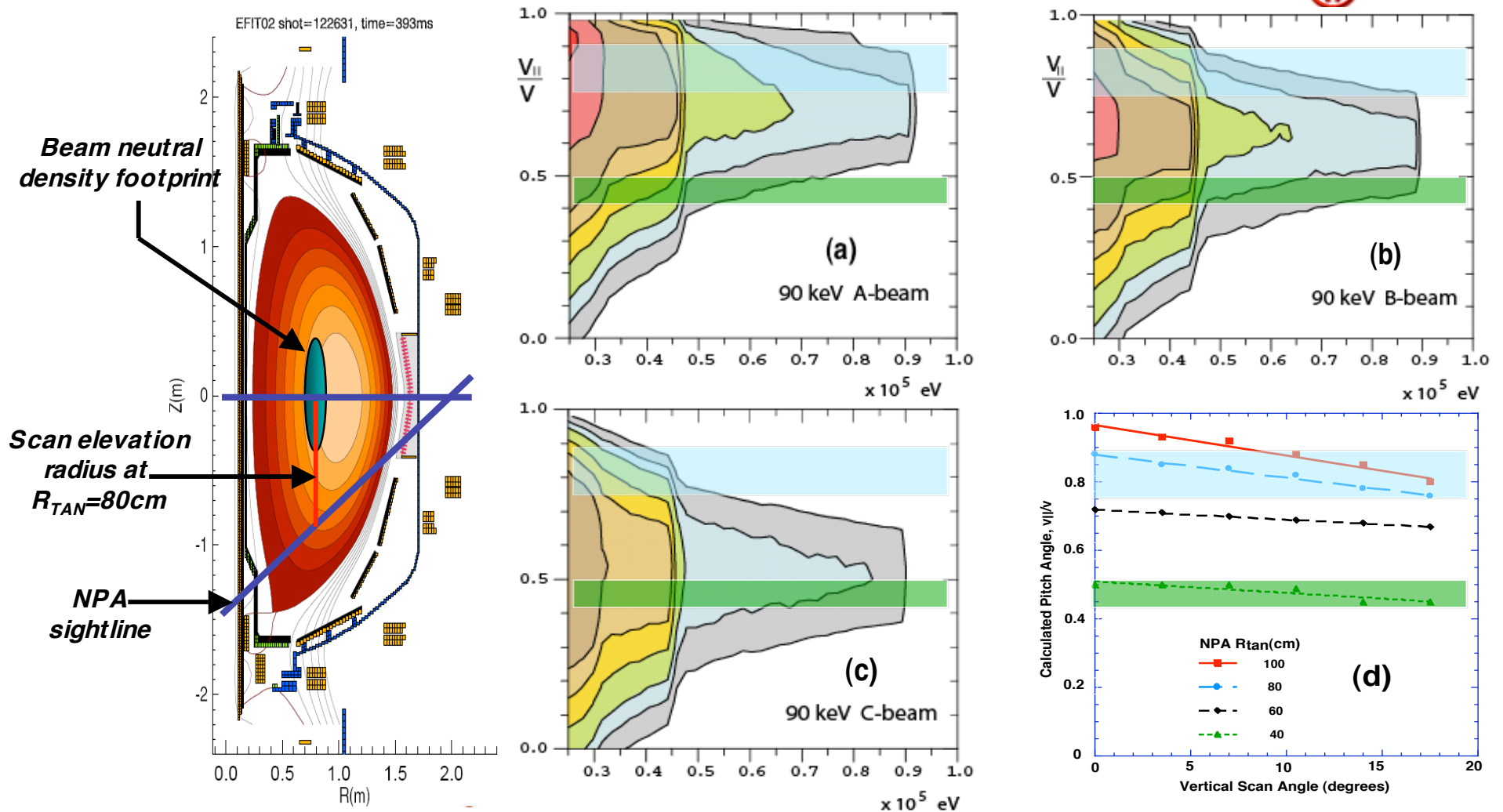
Princeton Plasma Physics Laboratory, Princeton, NJ 08543



**NSTX Results Review
August 6-7, 2008**

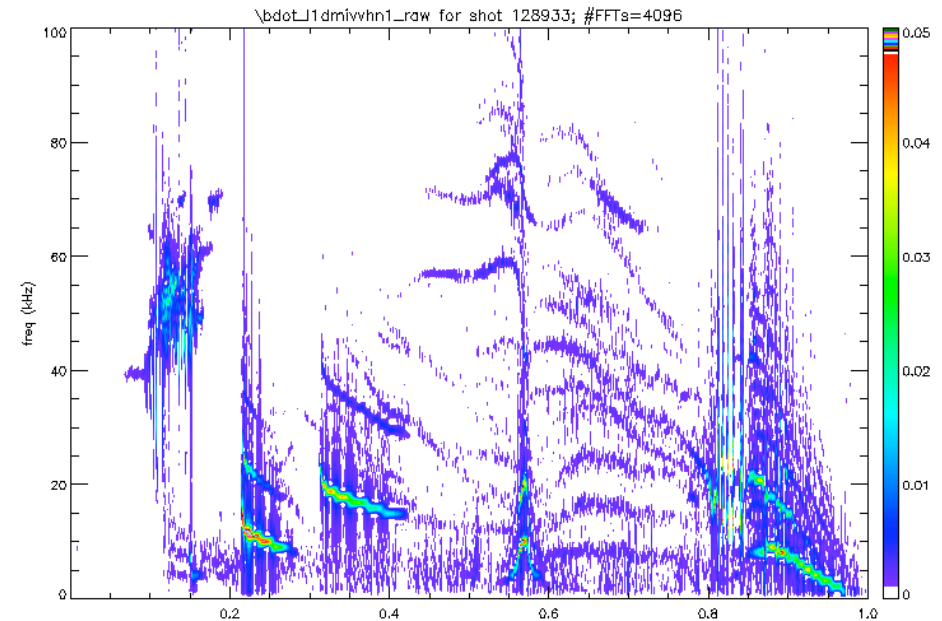
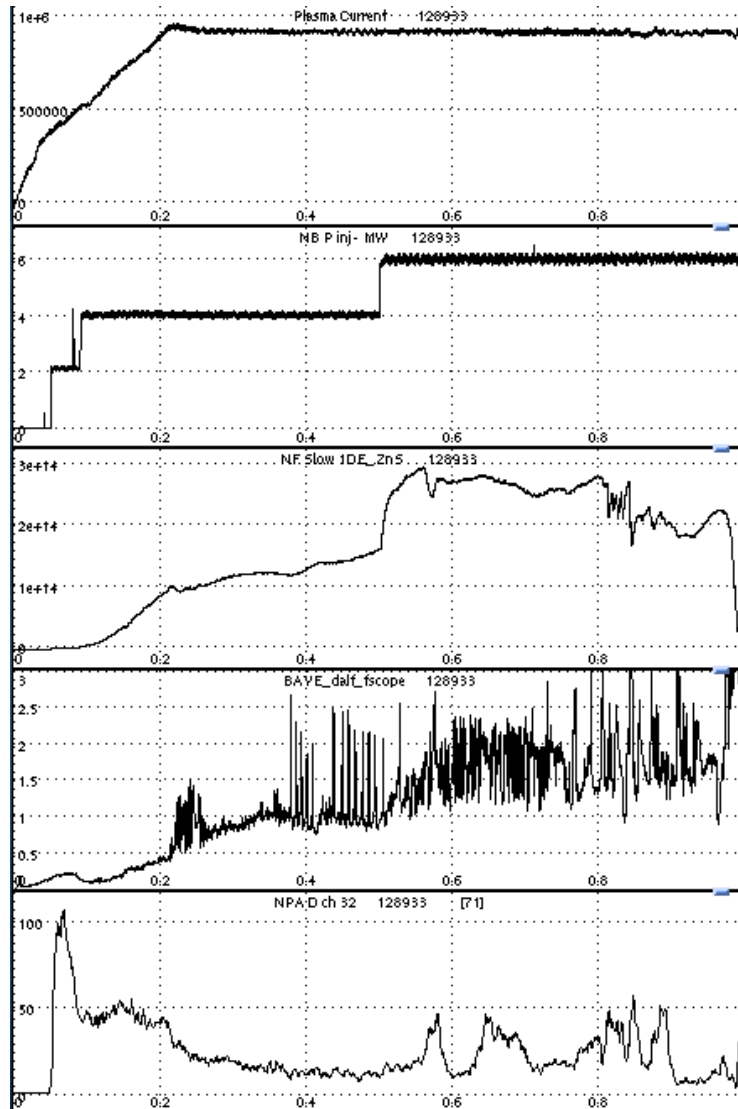
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XP-807 Addresses NPA Vertically Scanning Measurement of MHD-induced Energetic Ion Redistribution at Reduced Field Pitch: $v_{||}/v \sim 0.47 \pm 0.03$.



• XP-707 at larger field pitch, $v_{||}/v \sim 0.85$, is documented in “Neutral Particle Analyzer Vertically Scanning Measurements of MHD-induced Energetic Ion Redistribution of Loss in the National Spherical Torus Experiment,” Medley, et al., PPPL-4270, November (2007)

A Standard Fiducial Shot Was Used for XP-807

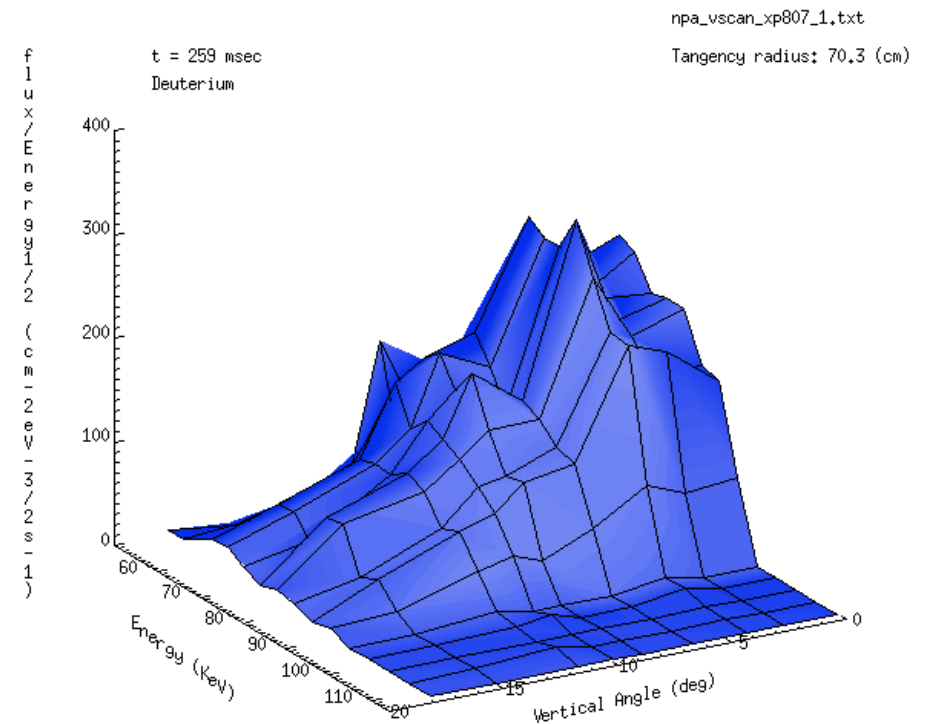
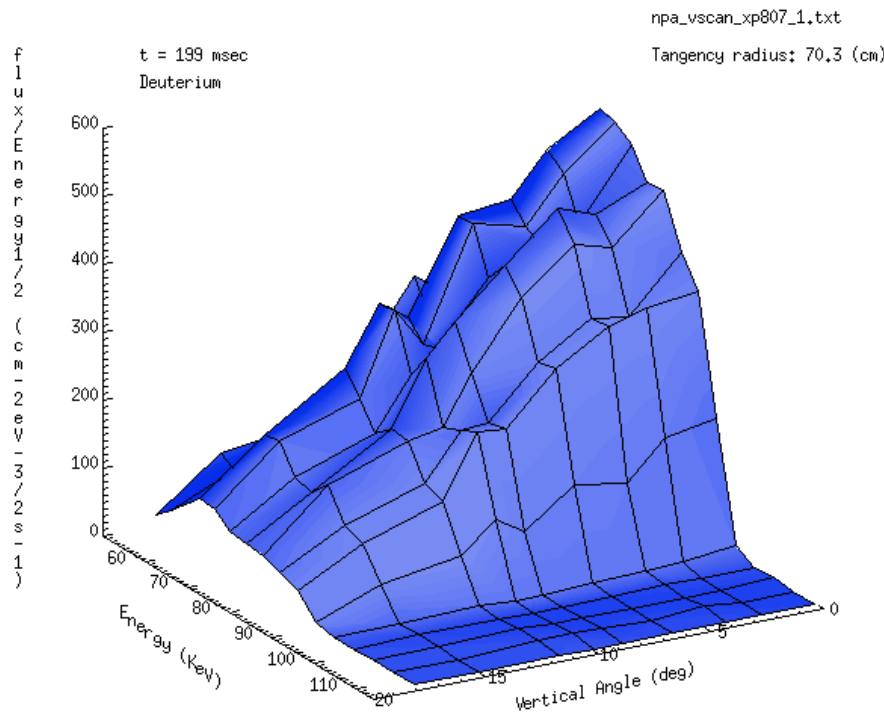


- Early H-mode with $I_p = 0.9$ MA, $B_T = 4.5$ kG and A, B, C @ 90 keV.
- Significant 400 - 1000 kHz GAE activity throughout the discharge.
- After Source C turn-on, MHD was not reproducible and NPA was 'noisy'.

In XP-807 NPA, Vertically Scanning Measurement of Energetic Ion Redistribution Was Obtained Only for $t < 0.5$ s .



- Early core-peaked energetic ion distribution (left) is flattened by MHD activity (right).



Summary

- XP-807 confirmed previous results [documented in PPPL-4270, (1970)] but achieved only a modest reduction ($\sim 25\%$) in the target field pitch parameter, $v_{||}/v$.