



NSTX

NSTX EBW Research in 2003

Gary Taylor

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EBW Research Focus in 2003 Driven by NSTX EBW Milestone



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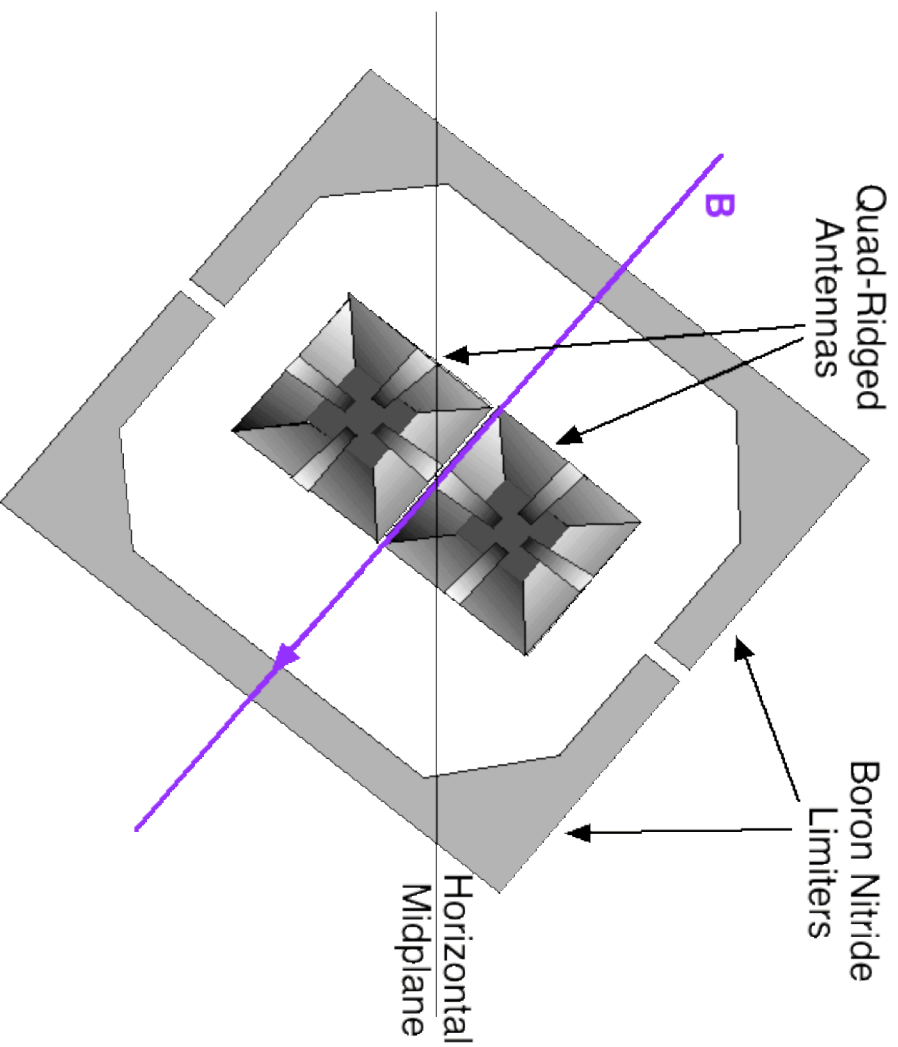
Need to characterize EBW mode-converted emissions to estimate requirements for EBW heating and current drive

- Demonstrate > 80% B-X and/or B-X-O conversion; prerequisite for EBW heating and current drive on NSTX:
 - install two B-X in-vessel quad-ridged antennas with local limiter, gas feed and reflectometry
 - modify existing ORNL reflectometer antenna with BN wedge for B-X-O study
 - MAST will conduct O-X-B heating experiments this fall
- Need to reduce fluctuations in conversion efficiency due to edge density fluctuations
- Complete GENRAY/CQL3D heating & current drive scoping study

EBW B-X Antenna Assembly will be installed in NSTX this Fall

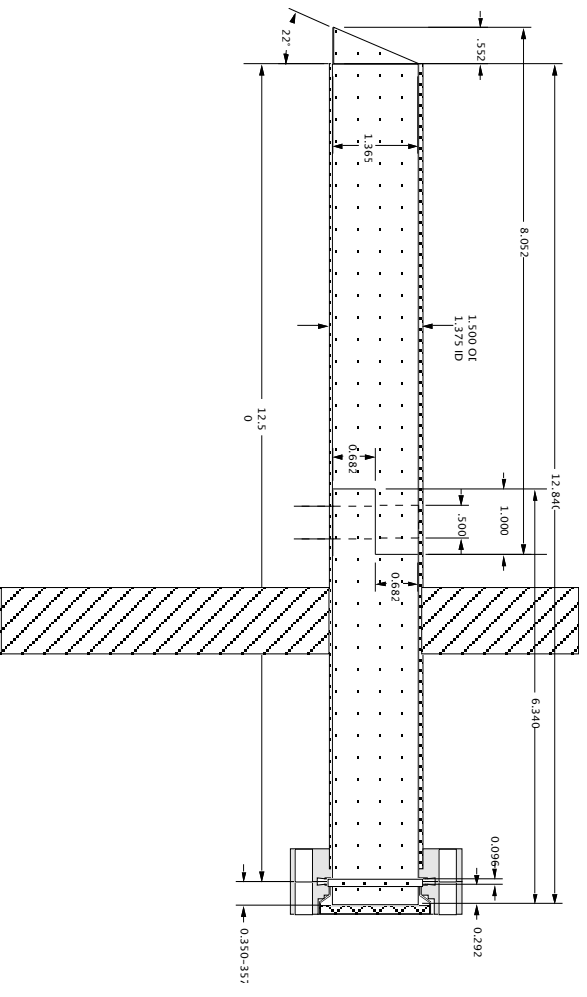
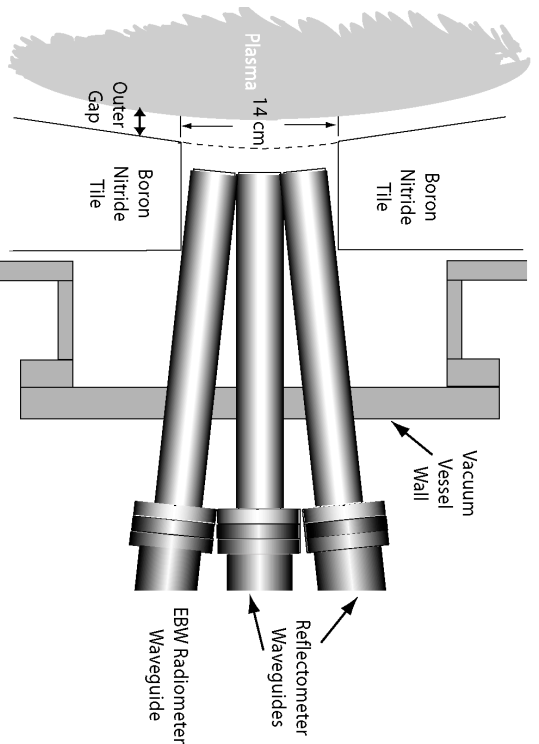


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- Two radially movable boron nitride limiters
- Integrated with O-Mode reflectometer to measure local L_n
- local gas inlet valve to enable local density control

Plan to Modify Existing ORNL Reflectometer Waveguide to View B-X-O Emission

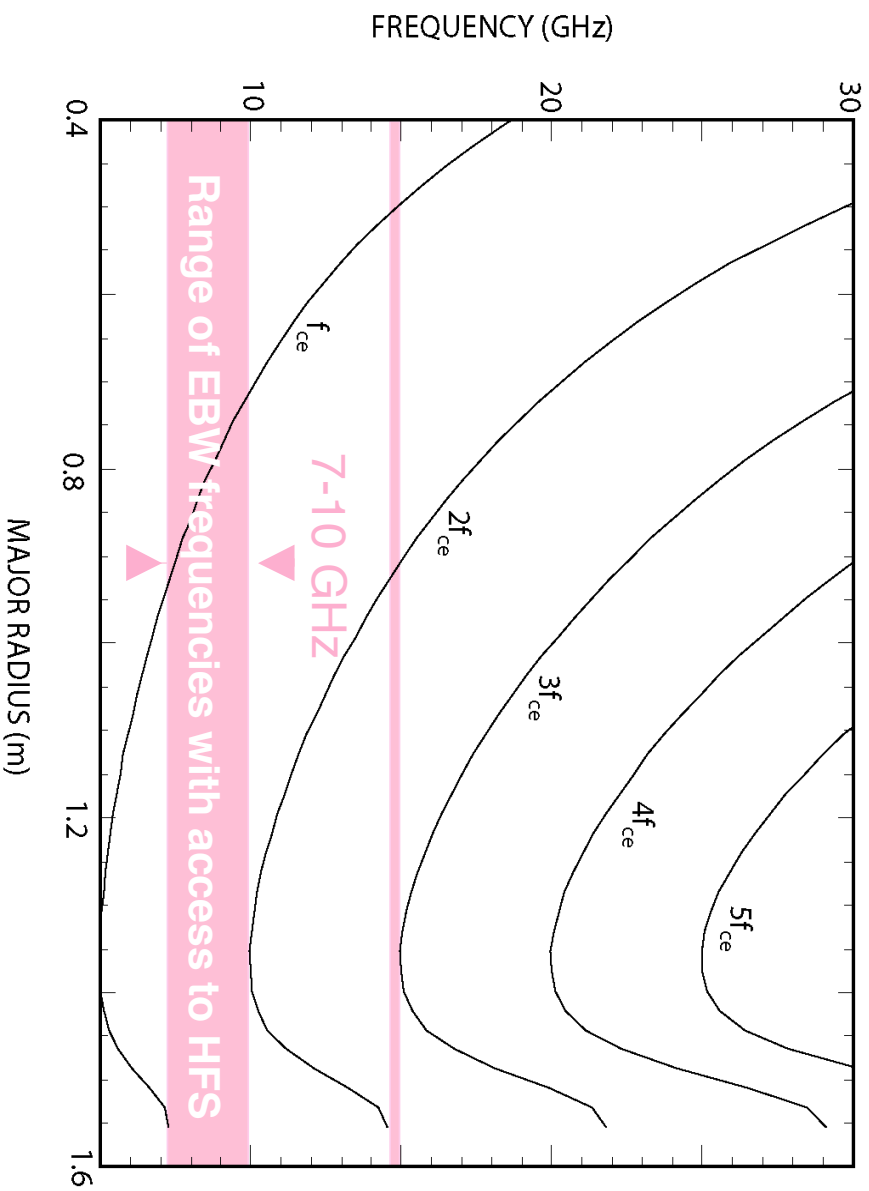


EBW Heating & CD at $\beta \sim 40\%$ Looks Challenging



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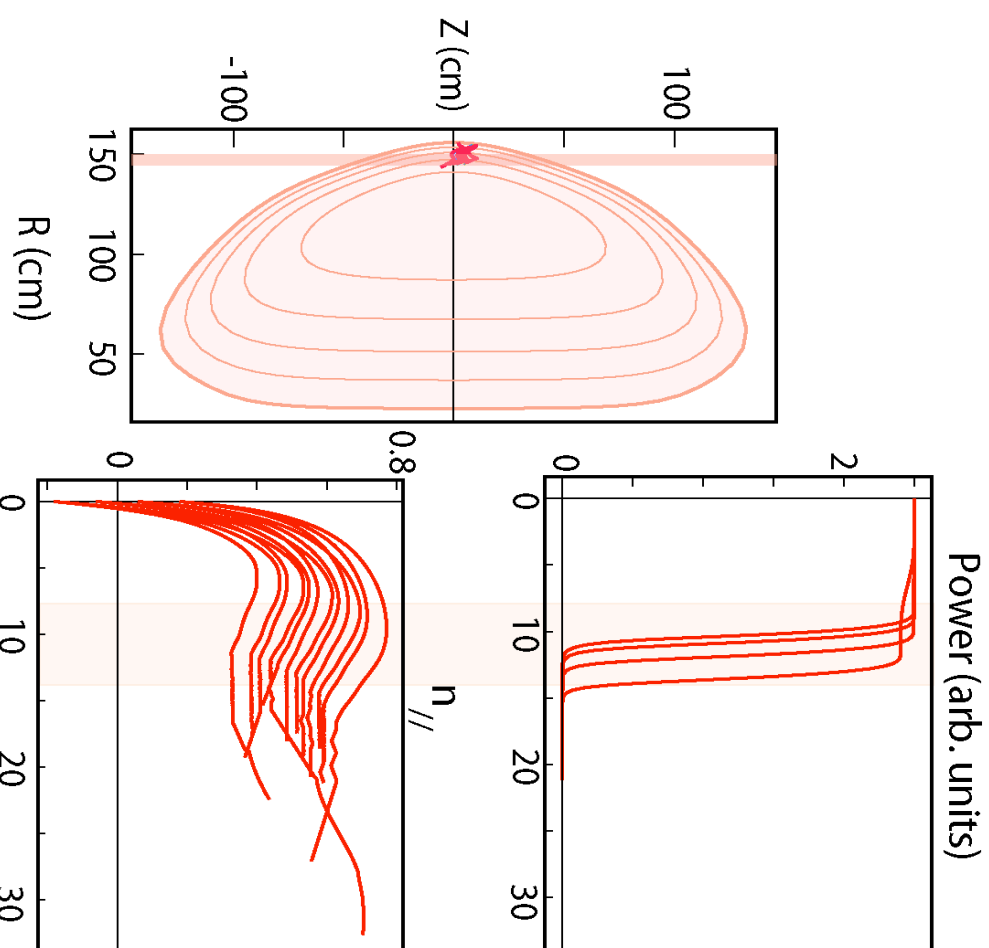
NSTX Mod B Profile for $\beta = 40\%$ Case



May be able to Drive Current with EBW at Large Major Radius at $\sim 40\%$



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GENRAY