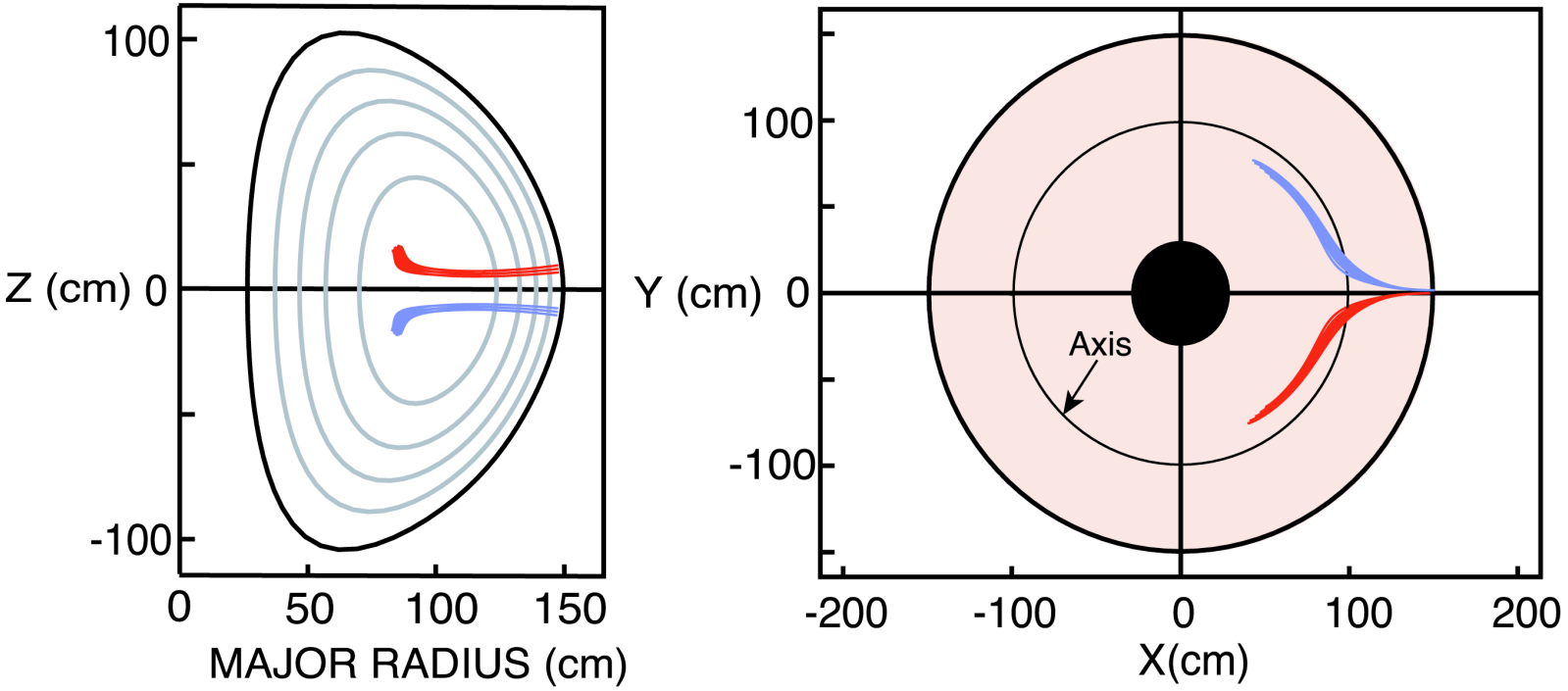
EBW Current Drive Direction Changed via Poloidal Launch Angle

EBW Frequency = 12 GHz, $-0.25 < n_{//} < 0.25$, 10 cm pol. length
Launched 10 deg. above mid-plane
Launched 10 deg. below mid-plane
NSTX $\beta = 12\%$, $n_{eo} = 2 \times 10^{19} m^{-3}$, $T_{eo} = 1$ keV



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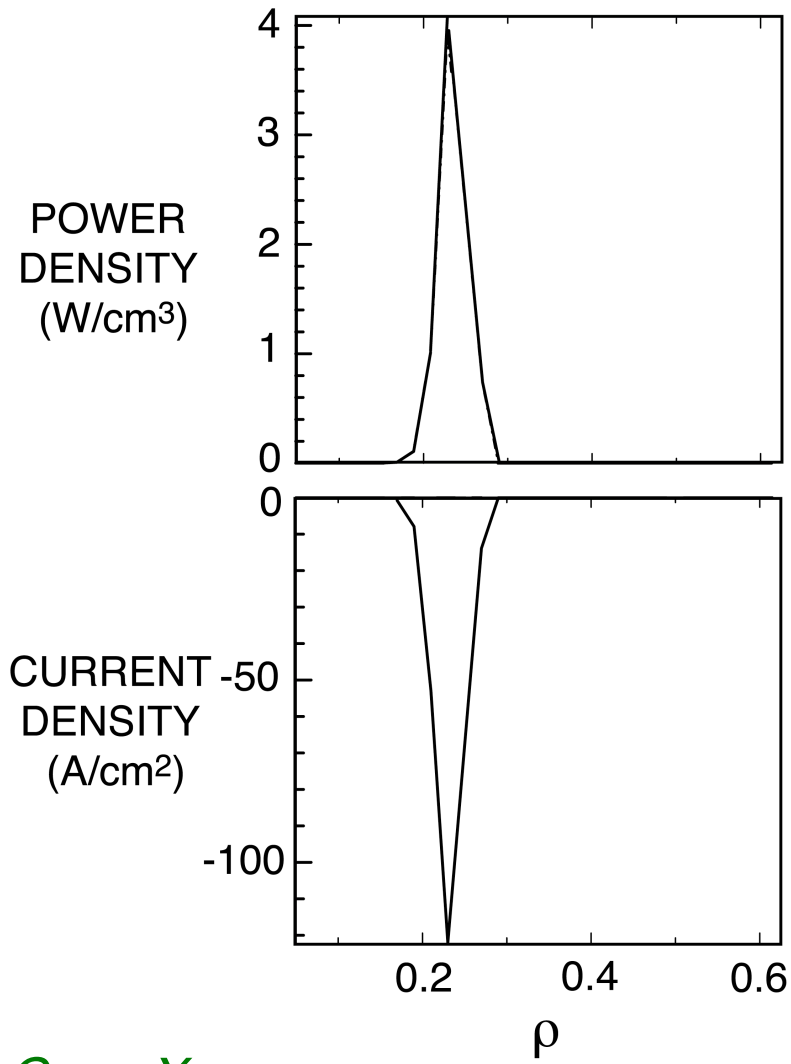
At □ = 12% NSTX Plasmas with $n_{eo}=2x10^{19}m^{-3}$,$T_{eo}=1$ keV EBW Current Drive Efficiency with 1 MW is ~ 0.1 AW^{-1}



- At □ ~ 40% current can be driven on the HFS, but at lower efficiency
- At □ ~ 40%, $n_{//}$ trajectory very sensitive to magnetic equilibrium
- Need to optimize $n_{//}$ at the EBW power deposition region

EBW NTM Suppression on NSTX

- Earliest availability of ~ 1 MW EBW heating/CD is 2006
- ~ 5 MW upgrade may be available in 2008/9
- High field side EBW damping problematic, particularly at high beta
- Trapped particles reduce CD efficiency on low field side
- What current density is required to suppress NTMs?
- Can local electron heating of X-point suppress NTMs?

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