

XP – Rotation effects on CAEs and GAEs

- CAEs & GAEs potentially significant to core energy & fast-ion transport.
- CAE/GAE predictive capability ultimately necessary to understand core energy & fast-ion transport
- Expect mode structure & f key factors in impact & sensitive to rotation
- Experiment: $n=3$ braking \Rightarrow rotation scan
 - measure structure & f
 - monotonic density profile for reflectometer array
 - 1/2 run day
 - B_T scan and different NB sources is time permits
 - compare with simulation: HYM, CAE3B

UCLA reflectometers provide radial array of δn measurements

- Microwaves reflect from plasma at *cutoff*: $\omega^2 = \omega_p^2 \propto n$
- Reflectometers measure path length changes caused by density fluctuations (δn)
- Microwaves launched radially in midplane:
frequency array \Rightarrow radial array
- Large array of frequencies:
 - Q-band: 30, 32.5, 35, 37.5, 42.5, 45, 47.5 & 50 GHz
 - V-band: 55, 57.5, 60, 62.5, 67.5, 70, 72.5 & 75 GHz
 - W-band: 82, 83.3, 84.7 & 86 GHz
- Large radial coverage in high density plasmas ($n_0 \sim 1 - 9 \times 10^{19} \text{ m}^{-3}$)

Backup

