HHFW Current Drive and its Degradation by Fast and Thermal Ions

C. Kessel

- Systematic scans of HHFW CD discharges, adding progressively larger NBI powers (fast ion density)
- Must measure heating and CD channels
  - Electrons
  - Thermal ions
  - Fast ions
- $K_{||}$ scan to verify trends with v_{ph}/v_{th}
- Impurity specification is critical, is there H in the plasma?
- Other approaches to identify effects: modulation, B_T, beam spatial distribution (different sources)

ET groups: HHFW and ISD

Vertical Stability and Control

C. Kessel

- Establish plasma elongations that can be controlled in NSTX and produce verified simulation for modeling
  - Other plasma shape parameters (squareness)
  - Radial position control, proximity to passive plates
  - Future upgrades: PS upgrade, time-delays, passive plate connections, PF1 modification
- Examine growth times for various plasma shapes: including current profile and pressure effects
- Series of disturbances to identify controller features: step response, drift and recover
- Flux loop or B-probe sensitivities for stronger shaped plasmas

ET groups: MHD and ISD