

CHI Primary Experiments for FY'03

Prioritized list developed in discussion session 9/12/02

- Short pulse startup scenario (Raman, Bell; 4 d)
 - *Build on results of new HIT-II experiments*
 - Demonstrate persistence of toroidal current
 - $I_{\text{CHI}} = 10 - 30 \text{ kA}$, ramp down over 10 - 30 ms
 - Simultaneously ramp down PF1a, PF2L
 - Issues: coil, injector dI/dt capability, gas rate
 - Demonstrate that this is minimally perturbing for diagnostics and subsequent experiments
 - Add OH induction after decay of I_{CHI}
 - *What is poloidal flux saving?*
- Reestablish CHI startup to $\sim 0.3\text{MA}$ (Team, 2 d)
 - Investigate new absorber performance
 - Effects of changes to transient suppression
 - Scan V , p , (B_T)

CHI Primary Experiments for FY'03 (2)

- Absorber field nulling (Nelson, Gates; 2 d)
 - Power supply commissioning
 - Algorithm development
 - Assessment of effectiveness
- Develop practical method to evolve poloidal flux (Gates, Nelson and team; 3 d)
 - programmed and feedback control
- Demonstrate flux closure in most favorable conditions (Team; 2d)
 - Detailed magnetic measurements
 - Pressure profile measurement
 - Associated MHD activity
 - Data to constrain models (3-D MHD)

CHI Primary Experiments for FY'03 (3)

- Edge current drive in OH (Mueller; 2 d)
 - Dependent on adequate noise immunity of magnetic diagnostics
 - Probe measurements of helicity transport (Ji, Boedo)
 - Investigate effects on edge rotation, L-H transition, impurities, edge turbulence (TBD)
- Coupling CHI initiation to non-inductive current drive methods (Team, TBD)
 - HHFW-CD
 - NBI probably not available unless problem of ground current trips can be overcome