

# 34th EPS meeting, Warsaw Poland

- *Non-locality and Perturbative Transport*, D. del Castillo-Negrete
- *Core MHD studies in the hybrid regime of JET operation (NTMs)*  
P. Buratti
- *Resistive Wall Mode Stabilization in Slowly Rotating High Beta Plasmas*,  
Holger Reimerdes
- *Bulk Plasma Rotation in the TCV Tokamak in the Absence of External Momentum Input*, B P Duval

# *Non-locality and Perturbative Transport,*

## D. del Castillo-Negrete

- First successful(?) attempt to reconcile heat pulse propagation studies with general transport modeling.
- Introduced “fractional derivative” modeling of the heat pulses (fractional powers of derivatives).
- consistent(?) with some models of ETG/ITG(??).
- benchmarked model on the modulated ECH heat pulse propagation, also fit the cold-pulse propagation
  - (I think from a pellet-like event, rather than an ELM).
- Not sure if the model can fit:
  - dTe inversion widely reported for TFTR cold pulses.
  - sawtooth/fishbone/partial sawtooth trichotomy.

# Core MHD studies in the hybrid regime of JET operation (NTMs)

P. Buratti

- Contributed oral presentation on neoclassical tearing mode studies.
- Analysis of ECE data for direct measurement of the island width, benchmark for the interpretation of the Mirnov coil data.
- Bulk of the talk addressed experimental features of the “NTMs” *not* predicted by theory.

## *JET NTMs, continued*

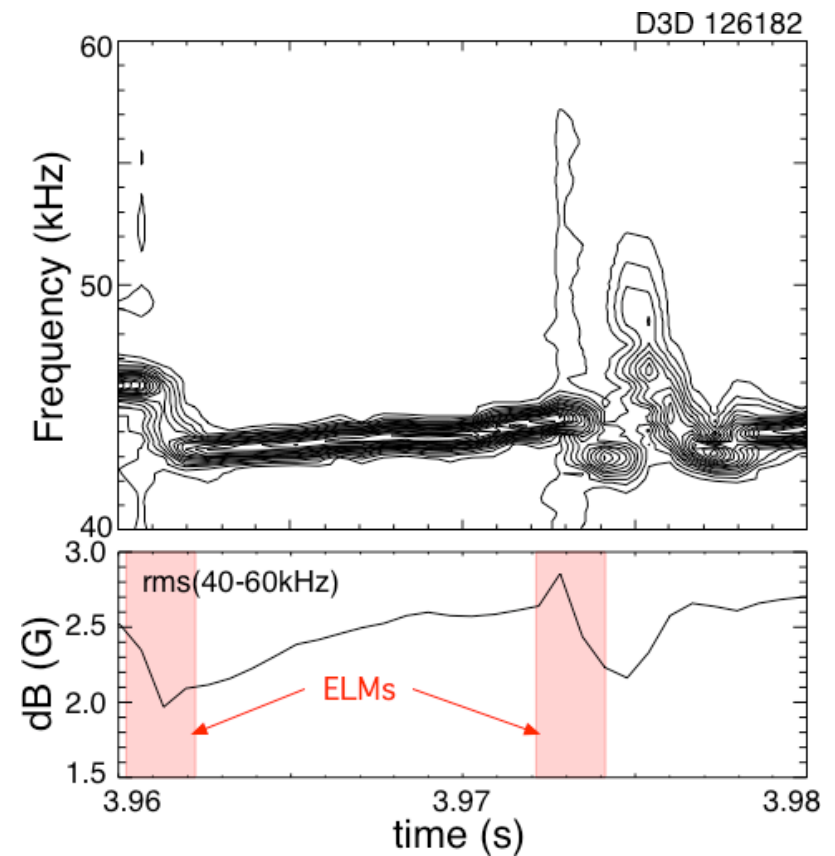
- Found quick drops in mode amplitude at ELM events.
  - Not consistent with islands (resistive timescale for island size change).
- Interestingly, these were poloidally asymmetric, with no drop on the inboard side.
  - similar to the drops which I reported coincident with sawtooth crashes, although I don't know if there was the same in-out asymmetry.
  - Screening by scrape-off layer currents?
- These results seem only weakly consistent with DIII-D data that I've seen, which don't typically, for example, chirp

## *JET NTMs, continued*

- Island onset size was smaller than that predicted by the polarization drift correction, but consistent with the parallel/perpendicular transport model.
- Reported “spontaneous” NTMs, such as were reported on TFTR.
- The JET NTMs also showed strong frequency chirps,
  - taken as an indication that there was some fast ion drive.
- As on TFTR, the mode amplitude also fell at the chirps, but speaking from memory, he didn’t think that there was the poloidal asymmetry that he saw with the ELM amplitude drops.

# *JET NTMs, continued*

- Chirps are also seen for DIII-D NTMs, but my impression is not as many.
- DIII-D chirps may be correlated with some ELMs.
- Similar mode amplitude drop as on JET, no info yet on poloidal symmetry of drop.
- TFTR chirps over larger frequency range, neutron drops
- TFTR chirps not seen after beam turn-off.



# *Resistive Wall Mode Stabilization in Slowly Rotating High Beta Plasmas,*

Holger Reimerdes

- Talk followed pretty much presentations here by Michio and Garofalo.
- Expressed interest as to whether Hiro and I would continue study of scrape off layer currents and RWM stability.
- Also wanted some diagnostic which could measure internal mode structure, *e.g.*, improvements in Thomson Scattering system.
- Can't reach beta-limit at full field, so ECE is dicey.

# *Bulk Plasma Rotation in the TCV Tokamak in the Absence of External Momentum Input,*

B P Duval

- Much interesting data on the scaling of rotation
- Most interesting was that in limited discharges the rotation showed a clear density threshold for reversing direction.
- Profile measurements made with diagnostic neutral beam, nearly perpendicular injection.