

Summary of MHD ET break-out session

E Fredrickson and J Menard

17 XP ideas were presented

- 4 in energetic particle mode studies
 - 2 for ELM studies
 - 3+ on tearing modes and error fields
 - 6 on kinks and RWM studies
 - 2 for shaping
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- Concern about how the error field correction and bakeout will impact plasma operations; emphasis on correcting error field before xp's run!

Fast particle driven modes

- Proposed xps:
 - CAE thresholds: Gorelenkov/Fredrickson
 - TAE/EPM/f.b. (characterize): Bernabei
 - TAE/CAE (study with external excitation): Bernabei
 - D3D similarity XP (approved GA): Heidbrink
- All XPs impact transport studies, implications for next step and should produce useful physics understanding.

ELM stability

- Two proposals to study ELM stability by P. Snyder and C. Bush.
 - ELM characterization/control important to Transport and ISD ETs.
 - Interesting physics, contributions to global database.
- Limited available diagnostics and H-mode operational experience suggests wait and see approach

Tearing modes and error fields

- Four proposals:
 - li stability dependence: J. Menard
 - NTMs with reduced SMP and bakeout: Gates
 - Sawtooth triggered NTMs: Bell
 - SOL current measurement: Takahashi
- Uncertainty regarding impact of error field correction and improved wall conditions.
Applicability of NTM models to STs.
Identification of most relevant approaches.

Kink and RWM

- RWM characterization: Sabbagh
 - D3D comparison: Sabbagh/Garafole
 - RWM real frequency (damping): Okabayashi
 - Pfirsch-Schluter/BS current drive: Manickam
 - Internal/external coupling: Manickam
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- Uncertainty regarding error field correction and impact. Identification of most relevant approaches.

"Shaping"

- Proposed XPs:
 - Compression: Manickam
 - Triangularity: Gates
 - Dimples: Kaye (predicated on PF4 availability).
- All good physics. Need to coordinate with NSTX goals.

Discussion of priorities and goals

- Agreed that some effort on energetic particle driven instabilities warranted. Impact power balance, beam deposition profiles, etc.
- Some debate as to whether dedicated ELM studies were premature.
- Much discussion on best approach and goals of kink/RWM studies.
- Consensus that shaping studies valuable on many fronts - is PF4 operation conceivable?

Rough suggestions for run time:

Depends strongly on what happens during run;
somewhat of wait and see approach.

- 3 days for CAE/TAE studies.
- 0-1 day for ELM studies
- 2 days for tearing modes, (no) error fields.
- 3 days for RWM/kink studies
- 1 day for high beta