Summary of Session VII
Future Plans of MAST and NSTX

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NSTX and MAST Missions

NSTX

- Assessing the attractiveness of the ST as a fusion energy concept grounded in integration of topical science

- Using ST plasma characteristics to further a deeper understanding of critical toroidal physics issues.

MAST

- Explore and expand tokamak data base toward low-aspect-ratio ST regimes.

- Investigate potential of ST configurations.

Devices Are Complementary

NSTX Capability

- Outer-vessel PF Coils
- Passive Plates
- Tight fitted VV
- Strong shaping $\delta \leq 0.8$
- 350° Bakeout
- CHI for start-up
- HHFW for heating and CD

- High voltage NBI (≤ 100 kV)
- Short divertor conn. length

MAST Capability

- In-vessel PF Coils
- No Passive Plates
- Very large VV
- Strong shaping $\delta \sim 0.4$-05.
- 150° Bakeout
- Merging/Compression start-up
- EBW (60 GHz) 1 MW
- Mid-Plane Pellet injection
- Med. Voltage NBI (≤ 60 keV)
- Long divertor conn. length
- Divertor bias

Upgrade Paths Are Complementary

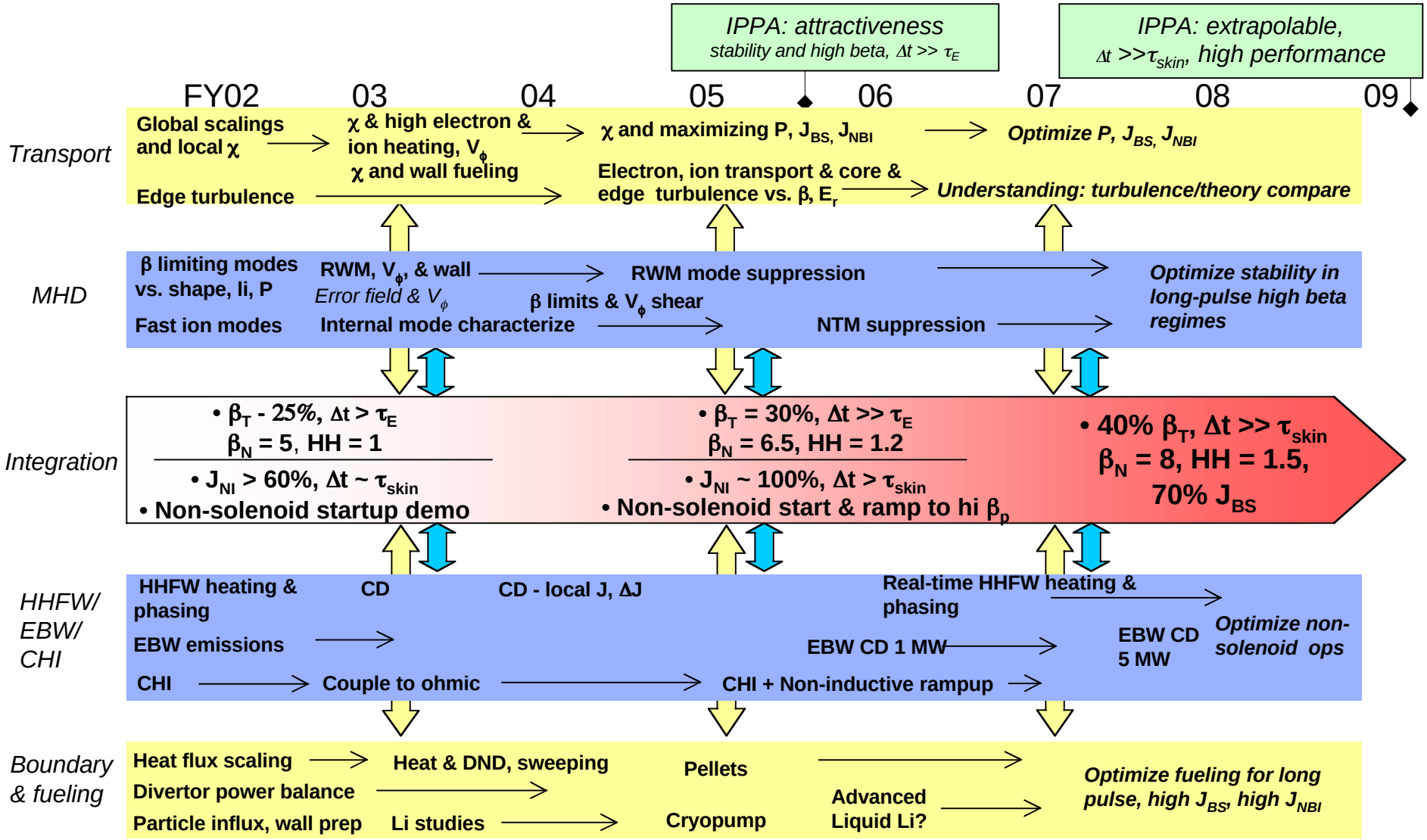
NSTX Upgrade Plan

- Active RWM stabilization
- EBW upgrades
  - Decision (end of 03)
  - 1 MW (06)
  - 5 MW (08)
- Advanced Power and Particle Handling
  - Decision (end of 03)
- Advanced Fueling
- Liquid Lithium?
- Diagnostics

MAST Upgrade Plan

- New Center-stack (May 03)
  - taller OH
  - 1 v-sec torward 2 MA?
  - Full TF capability
  - Improved shaping/divertor
- Error field coils?
- NBI upgrades
  - 2.9 MW, 300 msec (02)
  - 4 MW, >400 msec (03)
  - 5 MW, 5sec (04)
- Top Pellet injection
- Diagnostics

Integrating control tools & topical science is central to advancing the NSTX mission



Recommendations

Things are going so well that I have almost nothing to recommend!

Let us keep working together for present and future!

- Complementality
- Synergy

Let us keep open mind!

- Innovation - there are a lot of good ideas and physics surprises