NSTX and MAST H-mode similarity experiment

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NSTX and MAST are comparable STs

- Comparable I_p, B_t, major and minor radius
- Comparable fueling capability
- NSTX has higher NBI voltage and power
- MAST has larger vacuum tank and neutral inventory
- NSTX baked to 350 ^oC, MAST to ~ 150 ^oC
- NSTX has more shape flexibility

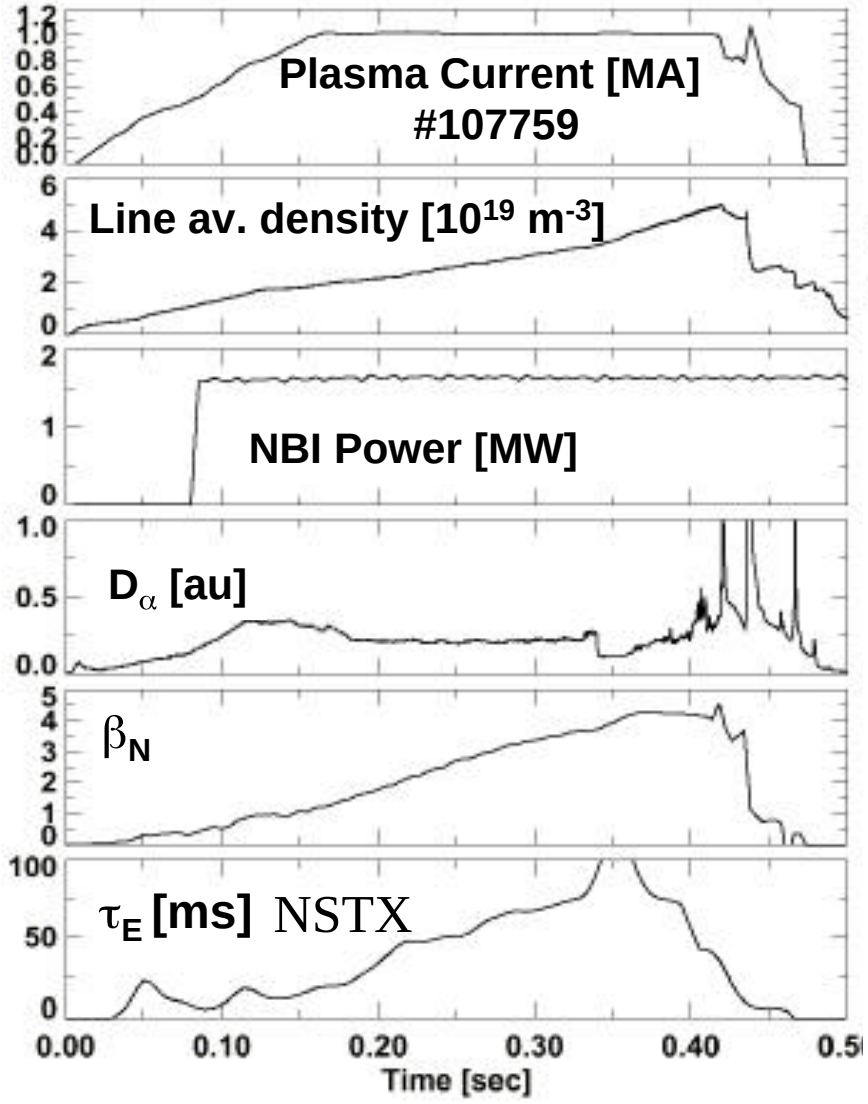
- KISS (keep it simple stupid) approach: *if we ran the same configuration in both machines with comparable NBI heating voltage/power, would the discharges be similar?*

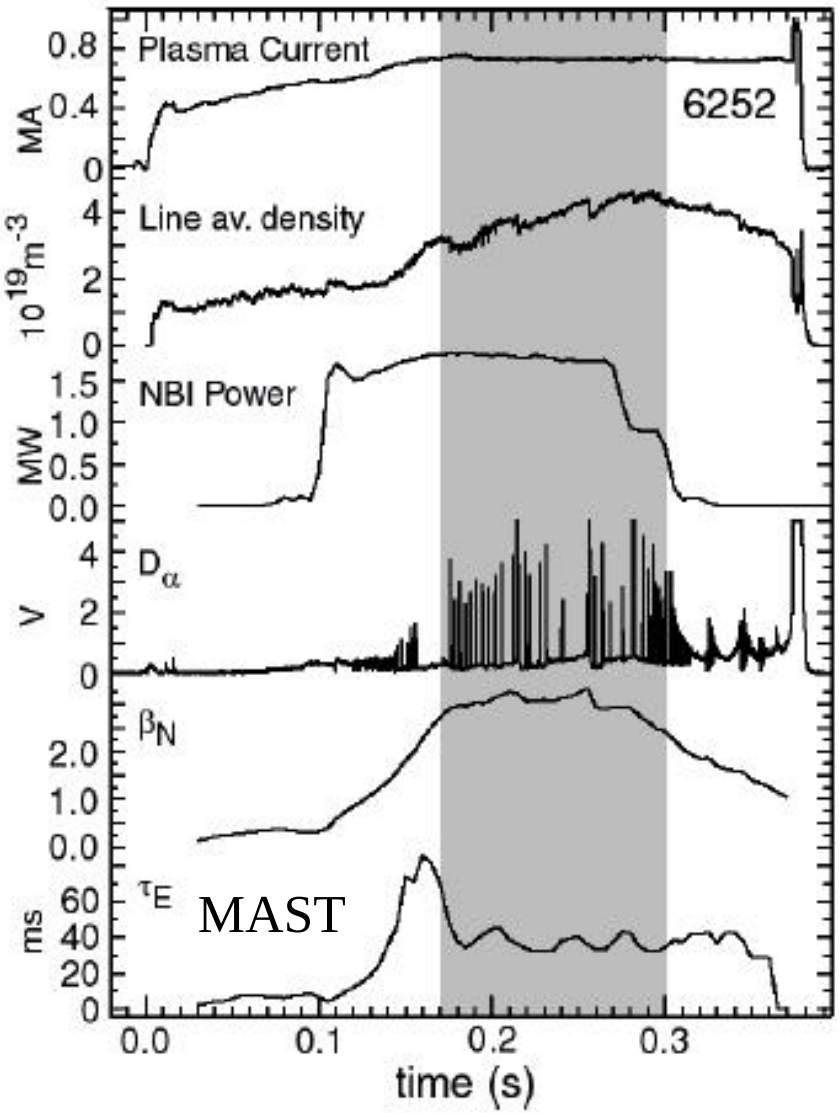
NSTX and MAST Similarity Proposal: 1 day (Discussed with Akers in 7/02)

- I_p: 800 kA range
- B_t: 0.4-0.5 T range (my guess)
- R/a: 1.3-1.4
- shape: double-null divertor
- δ: 0.4-0.5
- startup - ohmic
- NBI voltage: 50 kV-60 kV comparison, then NSTX extends upwards; primary = src. A due to similar tangency radius@70 cm

  (MAST particularly interested in quantified merits of going above 50 kV)
- NBI power: 1-2 srcs at above parameters from MAST, NSTX to match and extend
- NBI source tangency radius varied if time permits
- Fueling: HFS puff rates as best as possible

NSTX and MAST discharge comparison





Akers, presented at the NSTX 5-yr plan 6/02