

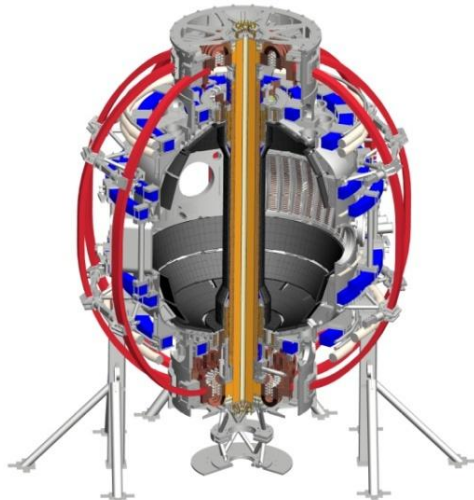
# XP: HHFW effects on toroidal rotation

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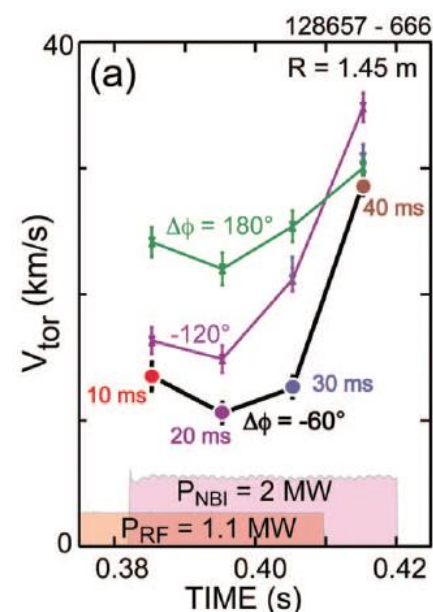
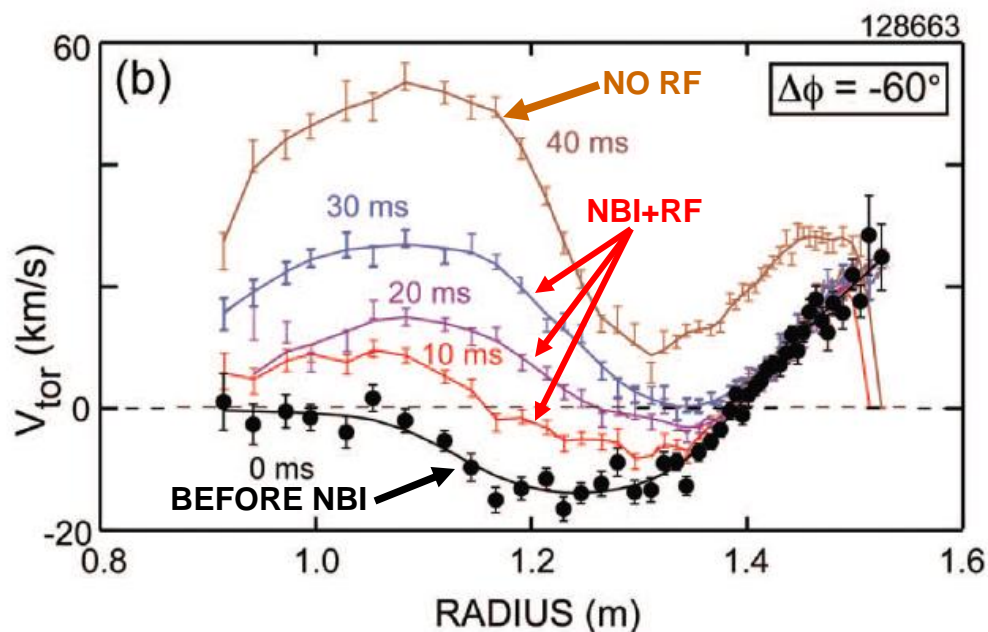
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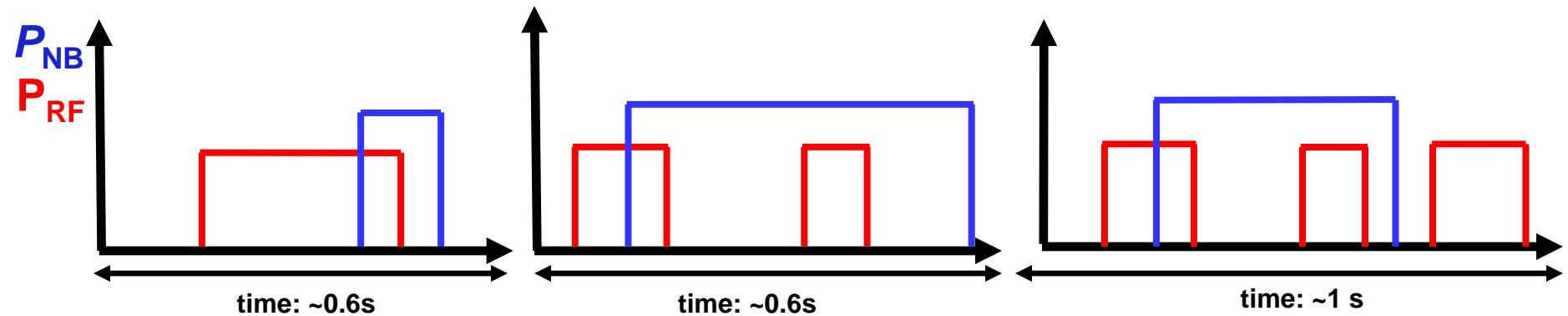
# Previous studies showed that the toroidal rotation appears to lock at the edge plasma during HHFW operation



- Edge toroidal rotation slows down with HHFW and suddenly increase when HHFW is off
  - See G. Taylor et al. PoP 17, 056114 (2010)
- This effect could be an attractive “tool” if confirmed and controlled
- This experiment is also useful to study the interaction of HHFW with edge energetic ions as previously done by Biewer et al. (PoP 12, 056108 (2005)) for possible RF power losses through PDI or other mechanisms.

# Perform systematic study of edge rotation locking

- RF power scan and NB power scan (only NBI 1)



- RF antenna phases scan:  $13\text{ m}^{-1}$ ,  $8\text{ m}^{-1}$ , and  $3\text{ m}^{-1}$
- To be investigated:
  - Does RF “freeze” the rotation profile, or RF is an additional drag?
  - Behavior of impurities and fast ions
  - Effects on core rotation?
- Required diagnostics: Thomson scattering, CHERS, ERD, fast ions diagnostics
- Run time: 1 day