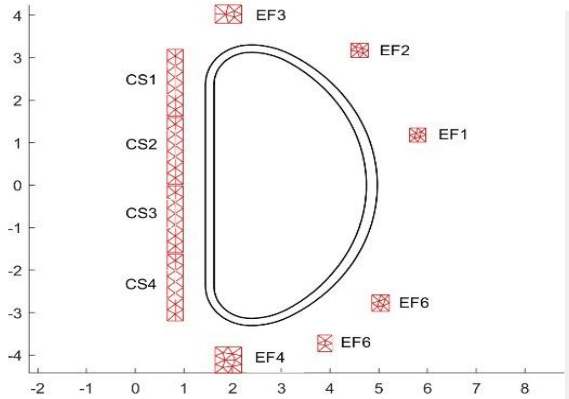
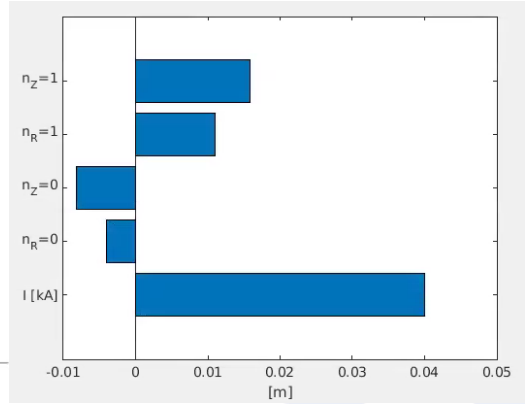
Intrinsic Error Field characterization





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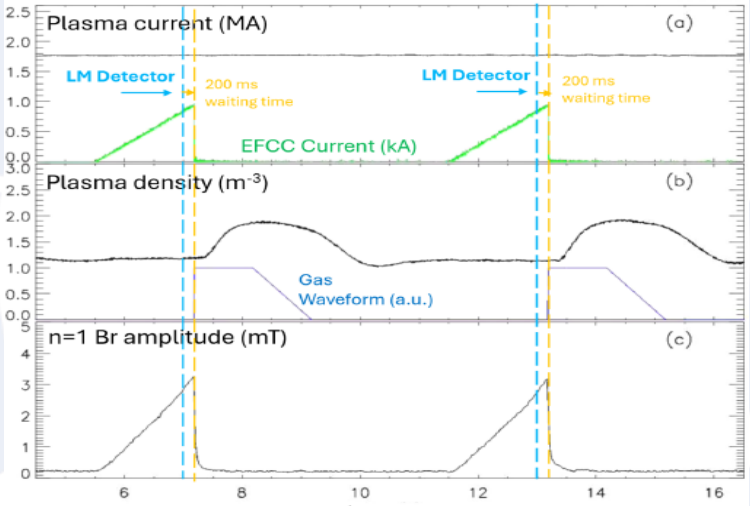
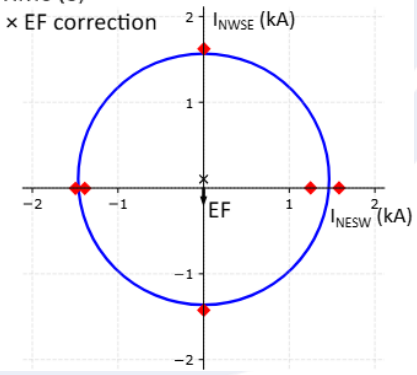
- **Scientific Background & Objectives**
  - Error Fields are a well know threat for tokamak operations because they affect plasma rotation and seed/Lock tearing Modes (LM)
  - Compass scan techniques are used to identify EFs, by ramping external fields with varying toroidal phase until a LM is formed and applying island healing methods in the non-disruptive case [1,2]

  Objectives of this proposal are:
  - Characterize the intrinsic EF in JT-60SA with standard and non-disruptive compass scan
    - Implementation of requirements for non-disruptive methods acting on density of temperature (e.g. gas, EC) (discuss within RT control WG)
    - Complement information from OP1: is the EF actually small?
    - Implementation of LM detection metrics
  - Characterization of rotation effect on EF shielding (w/ NBI)
    - Adding JT-60SA to EF penetration scalings
    - Modeling with MARS-Q and codes developed by the team
  - Implement data in vacuum model for EF [3]





[1] Piron, L., et al. *Fusion Engineering and Design* 208 (2024): 114694.
[2] Piron, L., et al. *Plasma Physics and Controlled Fusion* 67.6 (2025): 065006.
[3] Pigatto, L., et al. *Fusion Engineering and Design* 222 (2026): 115489.