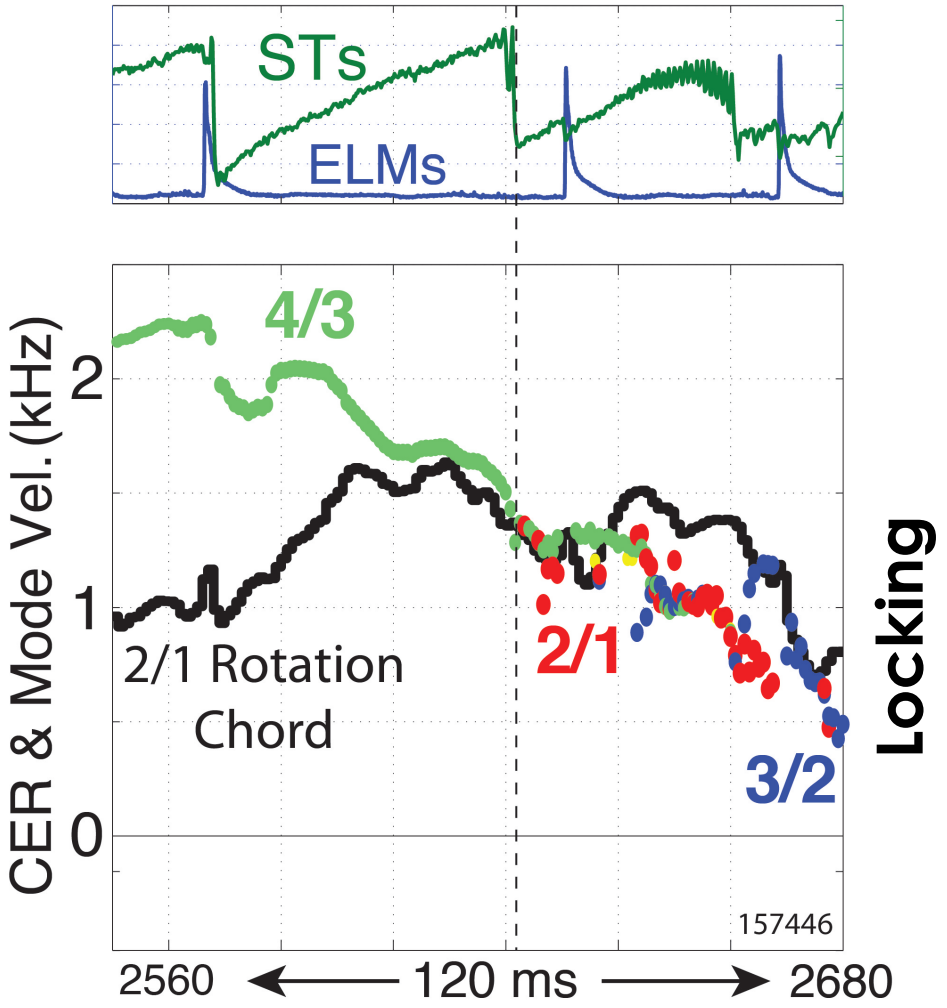
Proposal to look for tearing onset through driven reconnection across rational surfaces

- Experience on DIII-D reveals that keeping differential rotation across rationals is key to tearing stability
- Instability occurs at first ST with no differential rotation from higher order mode to q=2 surface
- 2/1 mode appears with same phase velocity as higher order mode



Proposal to look for tearing onset through driven reconnection across rational surfaces

- **Propose NSTX-U experiments to explore phenomenon in new parameter space, inform planned NIMROD modeling**

- **Requires plasma target with saturated higher-order tearing mode (3/2, 4/3, etc)**
  - Presumably this means a target already close to a low order tearing stability limit
  - "Low" safety factor would be best to compare to DIII-D dataset

- **Modify the rotation profile through: a) beam tangency, b) ex-vessel fields. Specifically seek to co-rotate rational surfaces**
  - Rotation controller could also be used if available

- **Data for this experiment could be supplied by other tearing + flow experiment proposals, but need the higher order modes!**