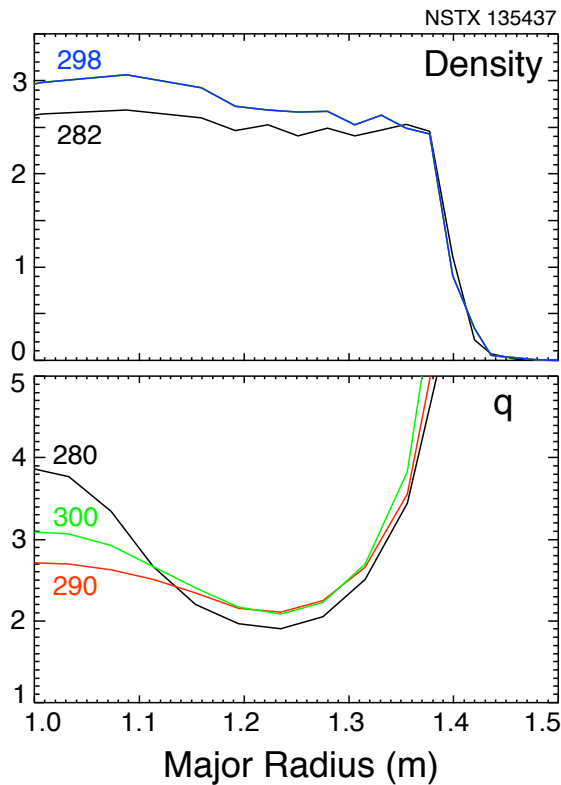


# Develop H-mode TAE avalanche target plasma XP-1011 (1/2 day)

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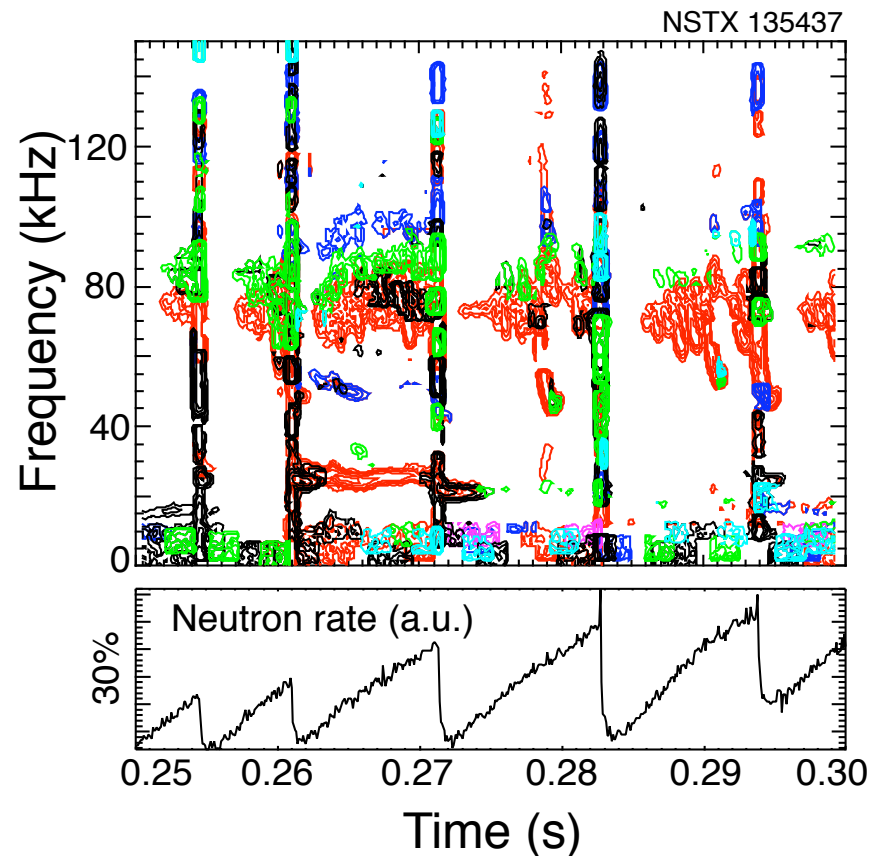
- Goal is to develop reproducible H-mode plasma with TAE avalanches
- Explore sensitivity to density, source voltage, toroidal field and beam sources.
- Attempt to optimize target to acquire some data with BES, sxi cameras and interferometers (FIReTIP) on mode amplitude

# Some H-mode TAE avalanches already identified



- Neutron rate drops at avalanches, as in L-mode plasmas.
- Range of n-numbers is similar to L-modes (2-5).
- Seen with full beam voltage and 5MW of power.

- Just as in L-mode cases, q-profile is slightly inverted with  $q_{\min} \approx 1.2 - 1.5$ .
- Density in right range seems to be key to TAE avalanches.



# Run plan, goals:

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- Goals for this half-day:
  - Reproduce TAE avalanches in H-mode shot
  - Explore existence criteria
  - FLIP, FIDA, SXI, FIRETIP, BES, MSE
- Experiment plan:
  1. Reproduce shot 135437, sources A,B,C (3 shots)  
A,B - 90kV, C - 70kV, 700 kA, 4 kG
  2. Small density scan;  $n_e(0) \approx 2.7, (3.2), 3.7$ . (4 shots)  
A,B - 90kV, C - 70kV, 700 kA, 4 kG
  3. Beam source scan; A&B, A,B&C (4 shots)  
A,B - 90kV then A,B - 90kV, C - 80kV, 700 kA, 4 kG
  4. Small current scan; 800 kA, 900 kA. (4 shots)  
Best densities, beams