# NSTX low density startup for reduced collisionality - XP1062 NTV XP experience

- **Motivation**
  - Produce reduced collisionality in NSTX
- **XP1062 had success reducing $\nu_i^*$**
  - Errant gas programming (low gas) in the startup yielded reduced $\nu_i^*$ late in the shot
  - Measured $\nu_i$ reduced by at least a factor of 4 in region of maximum NTV braking torque in 3 braking shots
- **Ideas for new XP**
  - Alter front-end gas programming – reducing the amount of total gas
  - Add n = 1 feedback through PID, n = 1,2 with RWM state-space controller early in the discharge
    - Help stave off deleterious n = 1 mode activity; get data on mode locking vs. $n_e$, n = 1 feedback