Scientific Quality: Recent Achievements
- Record non-solenoidal $I_p = 0.225$ MA via Local Helicity Injection (LHI) in Pegasus ST
- LHI plasmas compatible with Ohmic sustainment and H-mode access
- Correlation of anomalous ion heating with continuous reconnection activity during LHI
- High $T_e > 100$ eV at tokamak density ($n_e \sim 1 \times 10^{19}$ m$^{-3}$)
  - Record for helicity injection startup
  - New reduced MHD regime discovered, leading to improved LHI $I_p(t)$
  - Experimental realization of large minimum-|B| well in world-record $\beta_t = 100\%$ plasmas

Relevance to Fusion Energy: Critical Issues Addressed
- Non-solenoidal startup capability eliminates need for central solenoid
  - Startup hardware removable before nuclear phase
  - First demonstration of LHI $I_p$ growth via handoff between separate HI systems
    - Proof-of-concept for future high $B_T$ injectors specializing in early, late phases of sustainment
  - Predictive 0D model suggests scenarios for NSTX-U, beyond

Supporting Comments: Next Steps
- Major facility upgrades to Pegasus planned to support comparative studies of LHI, coaxial helicity injection, with EBW RF heating/CD