

# SuperTran Baseline Testing

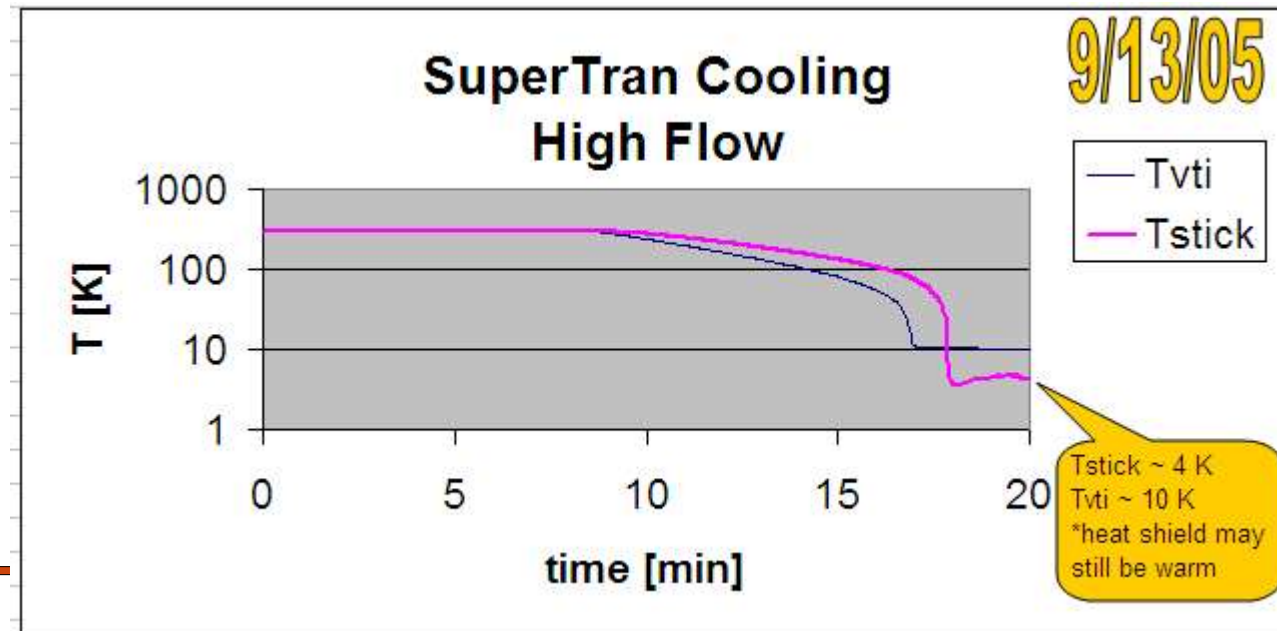
- SNS Barcode *SE CRYO 00002*
- “SuperTran” Open flow liquid helium cryostat manufactured by JANIS Research



- Open flow liquid helium system
  - Liquid helium (LHe) stored in external dewar
  - Special, slow-flow transfer line connects dewar and SuperTran unit
    - Flow rate can be regulated by liquid valve built into transfer line
  - Liquid injected into vaporizer at bottom of SuperTran sample tube
  - Helium exhaust gas exits from top of sample tube
    - Can pump or allow to passively flow to atmosphere

# Cooling Rate: Entire System

- Cooling rate varies with helium flow rate
  - Flow rate estimated by observing exhaust port
    - Frosty cold or warm-n-dry port
    - Cool down times faster than 20 minutes!
  - Cooling does not begin immediately due to transfer line cooling



# Cooling Rate: Sample Exchange

- Cooling rate varies with helium flow rate
  - Flow conditions for 60 minute cool down
    - Actively pumping VTI (~0.2 Bar exhaust, no warm valve)
    - No direct flow rate measurement here, but we need to implement for future tests
- Sample stick has considerable mass (let's measure it)

