LARP

# SQ02

Paolo Ferracin

LARP Collaboration Meeting

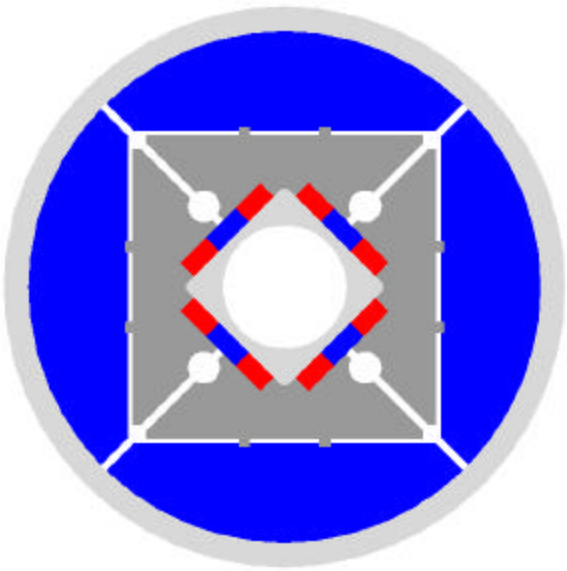
Port Jefferson

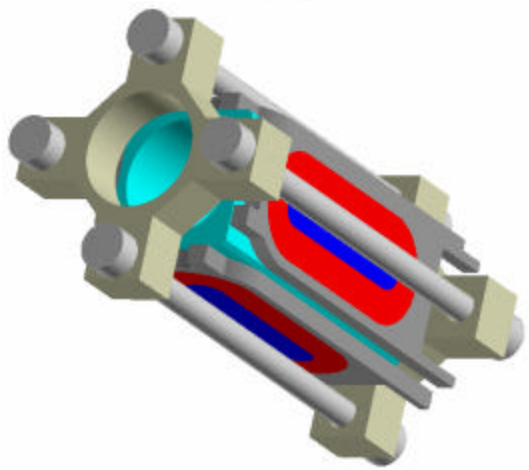
April 6 - 8, 2005

# Outline

- SQ magnet design
- SQ01 overview
- SQ02
  - Goals
  - Cost and schedule

# SQ magnet design

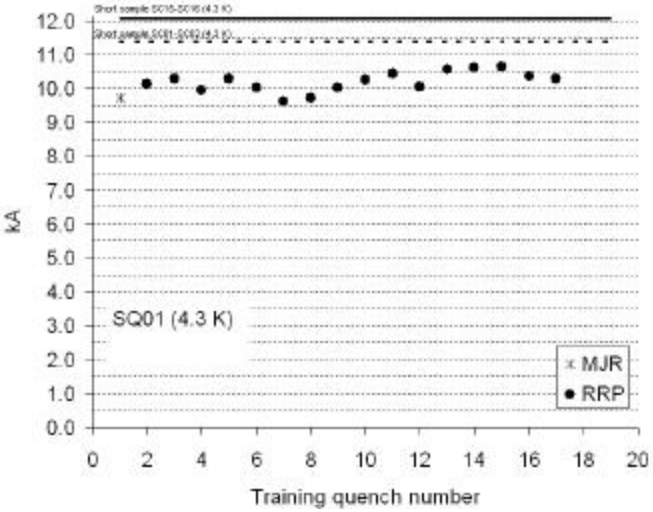


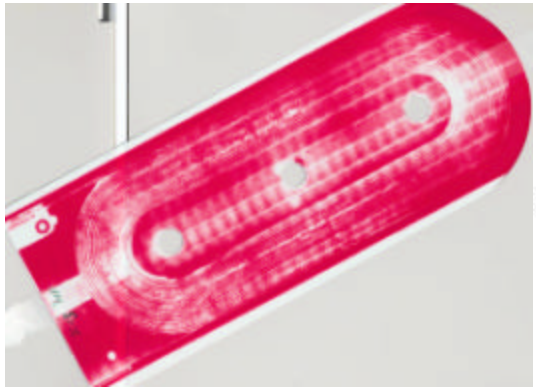


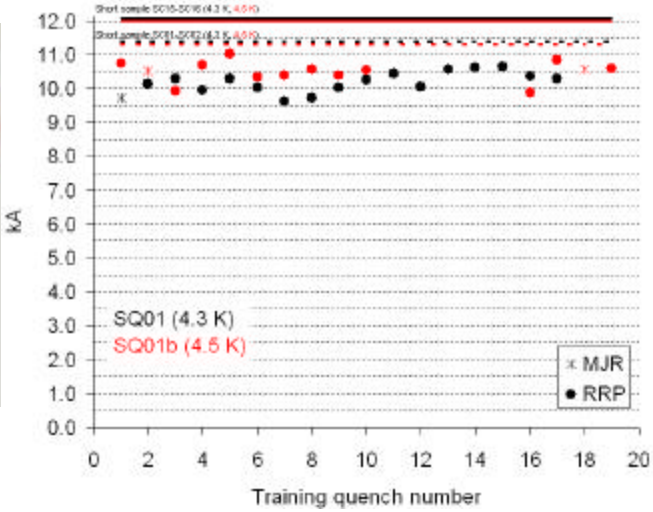
- Four subscale coils
- Aluminum bore
- Stainless steel pads
- Iron yokes and aluminum shell
- 11-12 T with > 11 kA
- End support
  - Aluminum rods
  - Stainless steel plates

# SQ01 overview

- Design, fabrication and assembly of SQ01 (Jan-Jul 04)
- Test of SQ01 at LBNL (Aug 04)
  - $I_{max}$ = 10.6 kA (4.3 K)
- Disassembly, inspection and reassembly of SQ01b (Nov-Dec 04)
- Test of SQ01b at FNAL (Jan 05)
  - $I_{max}$ = 11.0 kA (4.5 K)

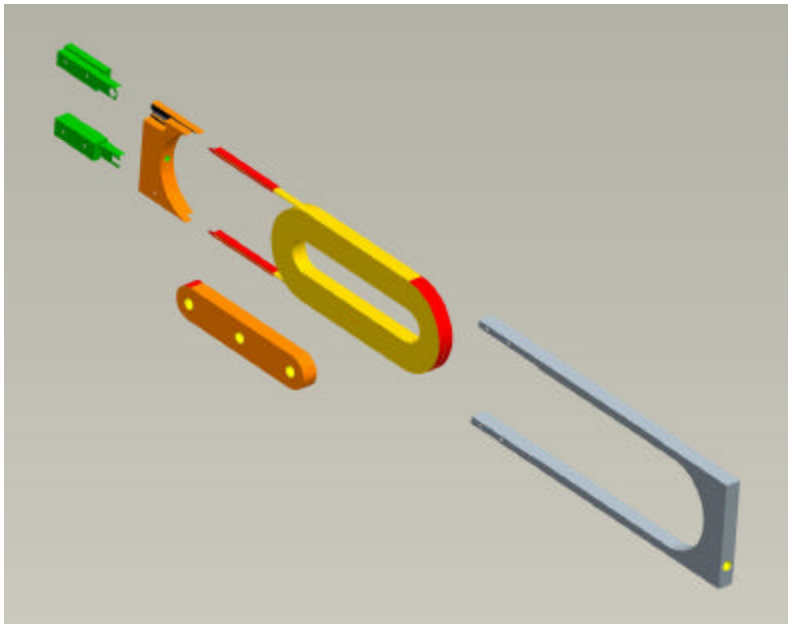




# SQ02 goals

- Fabricate four new coils
  - New island (aluminum bronze)
  - New horseshoe
    - Symmetric ends
  - New instrumentation
    - Voltage taps
    - Half bridge strain gauges
    - Spot heaters
  - Same size
- Test SQ02
  - Training / quench performance
    - Nominal azimuthal and axial pre-stress
  - Quench propagation experiment
  - Field quality measurements with four identical coils



# SQ02 cost and schedule

- Cable / coil fabrication
  - Time: April / May — Cost: 4 · 14 k$
- Magnet assembly
  - Time: June / July — Cost: 9 k$
- Test
  - Time: August / September — Cost: 35 k$
- Design/data analysis
  - Time: April / September — Cost: 18 k$

- Total: 118 k$