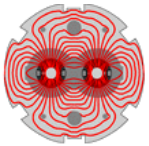



# US LHC Accelerator Research Program

*BNL - FNAL- LBNL - SLAC*

# SLAC RC Status Report

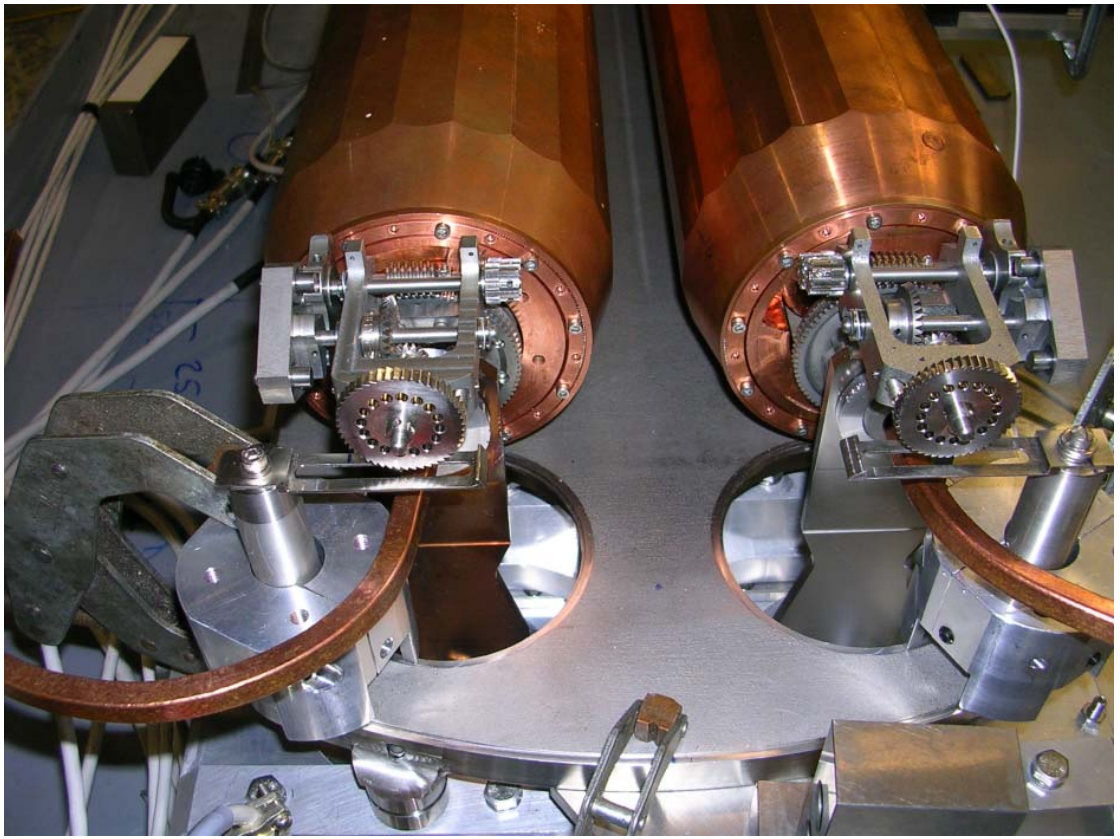
5 July 2010

LHC Collimation Working Group Meeting

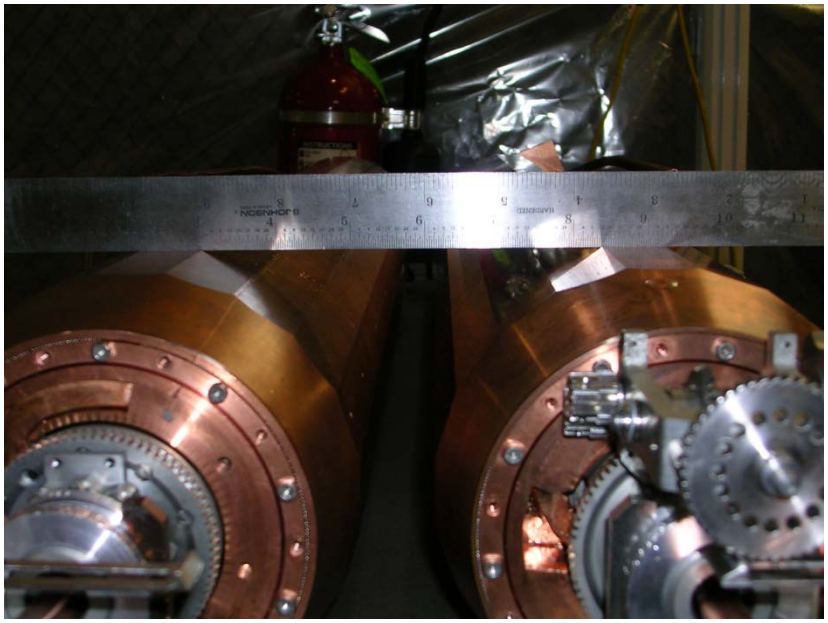
Tom Markiewicz/SLAC

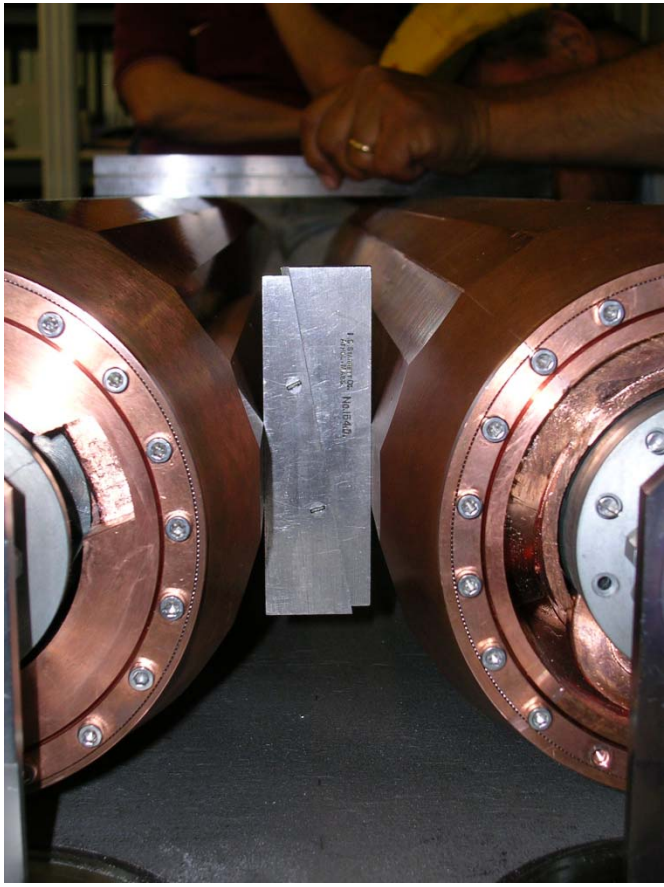
# Activities Since 6/7/2010 Status Report

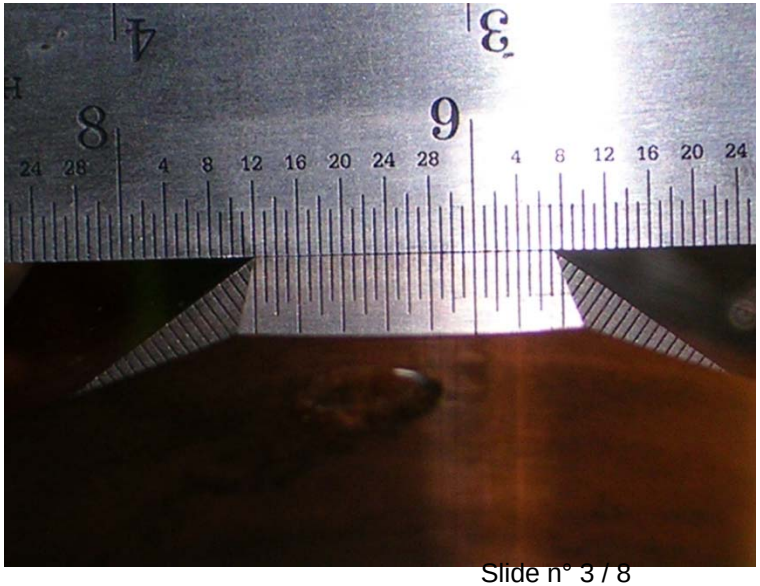
- Pierre Gander finishes torque tests June 11
- Much more testing of rotation drives and actuators



# Alignment and parallelism excellent

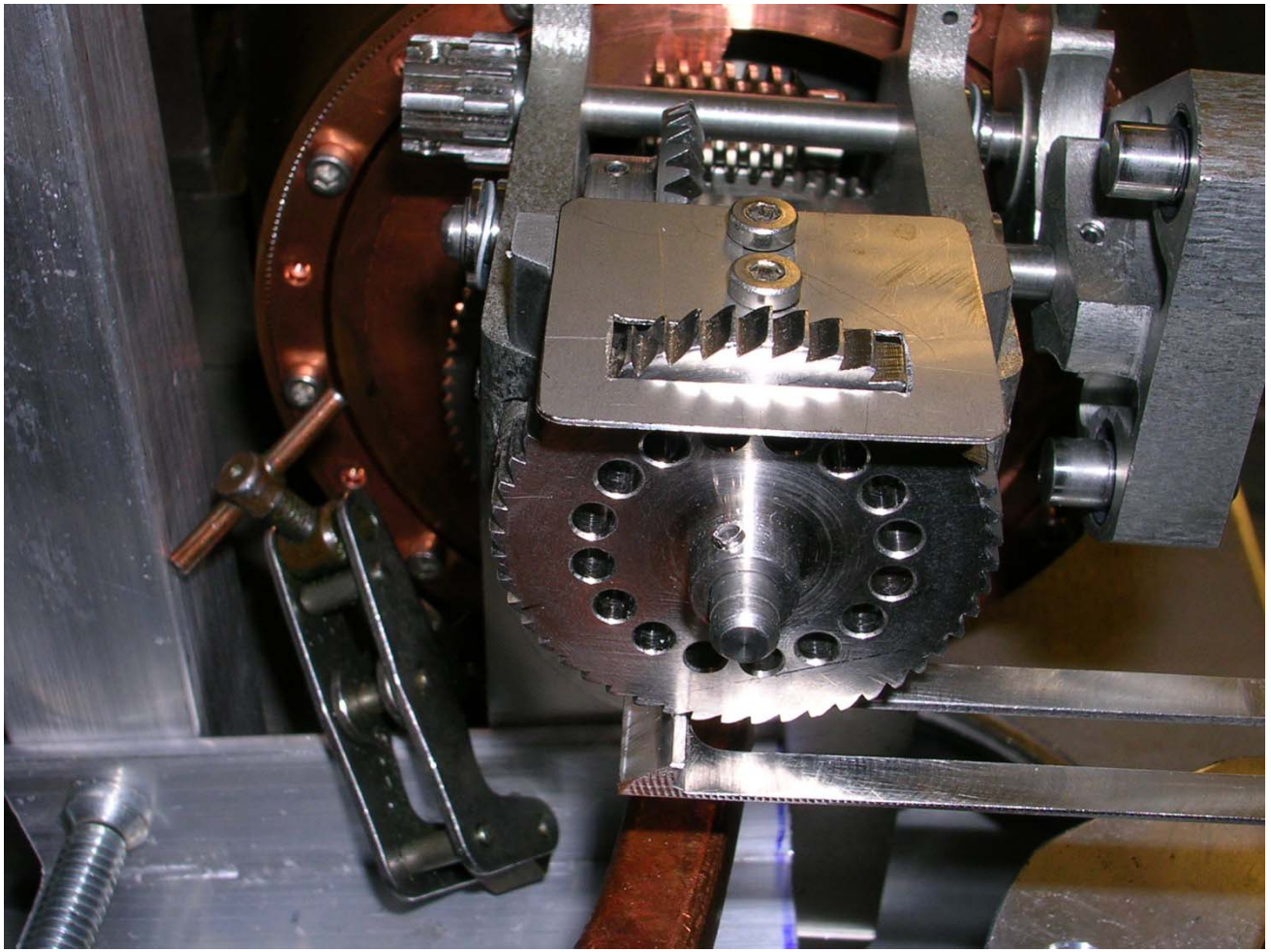






# Rotation drive needs a “pawl” (ratchet)

Parts developed, prototyped, fabricated, installed & tested



# 1mm Rhodium balls in RF race PROBLEMATIC

Smooth rotation and low contact resistance an art not a science so Abandon this plan

- Bearings now mechanical only
  - Race on 1st jaw rebuilt
  - Rebuild on 2nd race begins July 6
- RF contact through a ~6 cm arc of wavy Rhodium coated BeCu
  - Same <0.1mOhm contact resistance as previously measured
  - Contact  at beamline

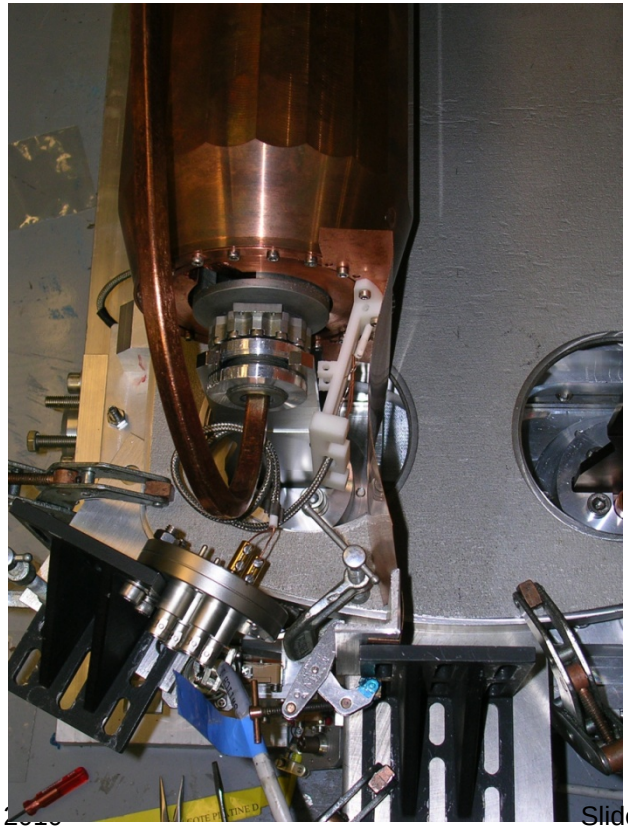
# Final (?) Part: Mounting bracket

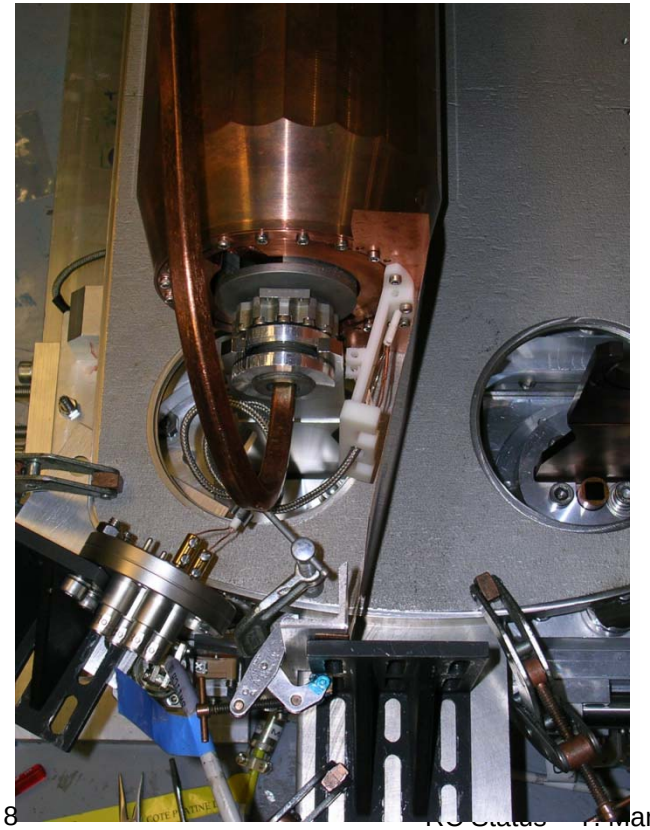
Purpose

- Hold the Rhodium coated foil
- Restrain the RF foil from rotating & maintain curvature
- Hold a thermistor

First plastic prototype made & tested; 2nd version plastic prototype ready July 6.

Jaw Open





Jaw Closed

# RC Tasks to Complete

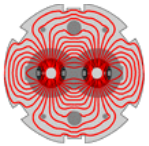
- Complete rotation drive tests in lab
- Rebuild both RF races on 2nd jaw for smooth operation
- Switch out all stainless screws for molybdenum screws
  - Fabricate the final 4 “wavy arcs” for contact resistance & Rhodium plate
  - Fabricate 4 mounting brackets for arcs, thermistors & RF foils
- Final cleaning:
  - Acetone & alcohol for all parts
  - Chemical cleaning of upper vacuum tank vessel
  - Bellows already vacuum fired & leak checked
- In a real clean room
  - Weld bellows to jaw supports & to baseplate
  - Reassemble jaws on baseplate
    - Vu tubing now bent down & brazed to feedthroughs
  - Final alignment & test of all parts
- Weld vacuum tank & test rotation drive
- Vacuum bakeout & final test of rotation drive
- Immobilize, protect, install shock monitors and do paperwork for shipping

# Politics & Collaboration Topics

- Letter of support for SLAC participation in Phase II Construction project will (has?) been sent from SLAC Associate Lab Director for Accelerators to Steve Myers
- Much dialog with DOE for increased financial support
- DOE Review July 15-16

Need to discuss with relevant people:

- SLAC Participation in RC Prototype testing at CERN after delivery
- Decision on nature of future prototype work
  - Support existing prototype with instrumentation (laser micrometer, etc.)
  - Additional HW for HiRadMat testing???
    - Non-vacuum, non cooled Glidcop jaws with next generation support & rotation system
  - Second prototype???
    - Exactly What? Lessons Learned; Design changes
    - Why, Where, When?




# Reference Material Follows

# SLAC design details