805 MHz cavity refurbishment (2)

NFMCC RF Workshop
FNAL
7-09

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JLab
805 MHz cavity refurbishment

• Cavity was heavily arc damaged after many runs at high magnetic field
• Heavy pitting on button holder, irises (with slight “dipole” asymmetry
• Further inspection revealed significant damage in the coupler region
• May explain why all button tests followed similar processing curve with magnetic field
805 Cavity “before”
Coupler region damage
Coupler region damage
Coupler extension damage
Refurbishment

- Polish out all visible iris damage
- Polish out arc marks in coupler region
- Polish out arc marks in coupler extension
- Cut inner and outer blend radii on coupler
- Ultrasonic clean and DI water rinse (HPR)
- Clean room assembly (to be done)
  - Cu and Be windows available
  - Button holder needs to be re-worked or re-made
- No electropolishing
Irises restored by hand-working
Key cutter used for inside blend
Copper windows
Update since 1-09

• All parts cleaned and ready for assembly
• Copper windows TiN coated
• First assembly had multiple leaks at tin seals
• Cavity disassembled for polishing of seal areas
Update since 1-09

• Polishing of tin seal areas
  – Leaks on pick-up ports and cover seals
Status 7-09

• Back in cleaning for reassembly now
  – One more set of tin seals to try
  – If it leaks again should we try indium or make more tin seals?

• Still more buttons to test!