



SRF Materials Group



*EP Facility and Process R&D*

C. Boffo 04-19-2006



# Outline

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- ☆ Process R&D
- ☆ J-Lab effort



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- ★ Moving forward in several directions:
  - ★ The 1 cell setup is being detailed (CB)
  - ★ Purchased a viscosity meter to define acid properties (CA)
  - ★ Purchased a selective electrode kit to investigate if it is usable for monitoring HF content (CA)
  - ★ Initial plan for tumbling (CC)





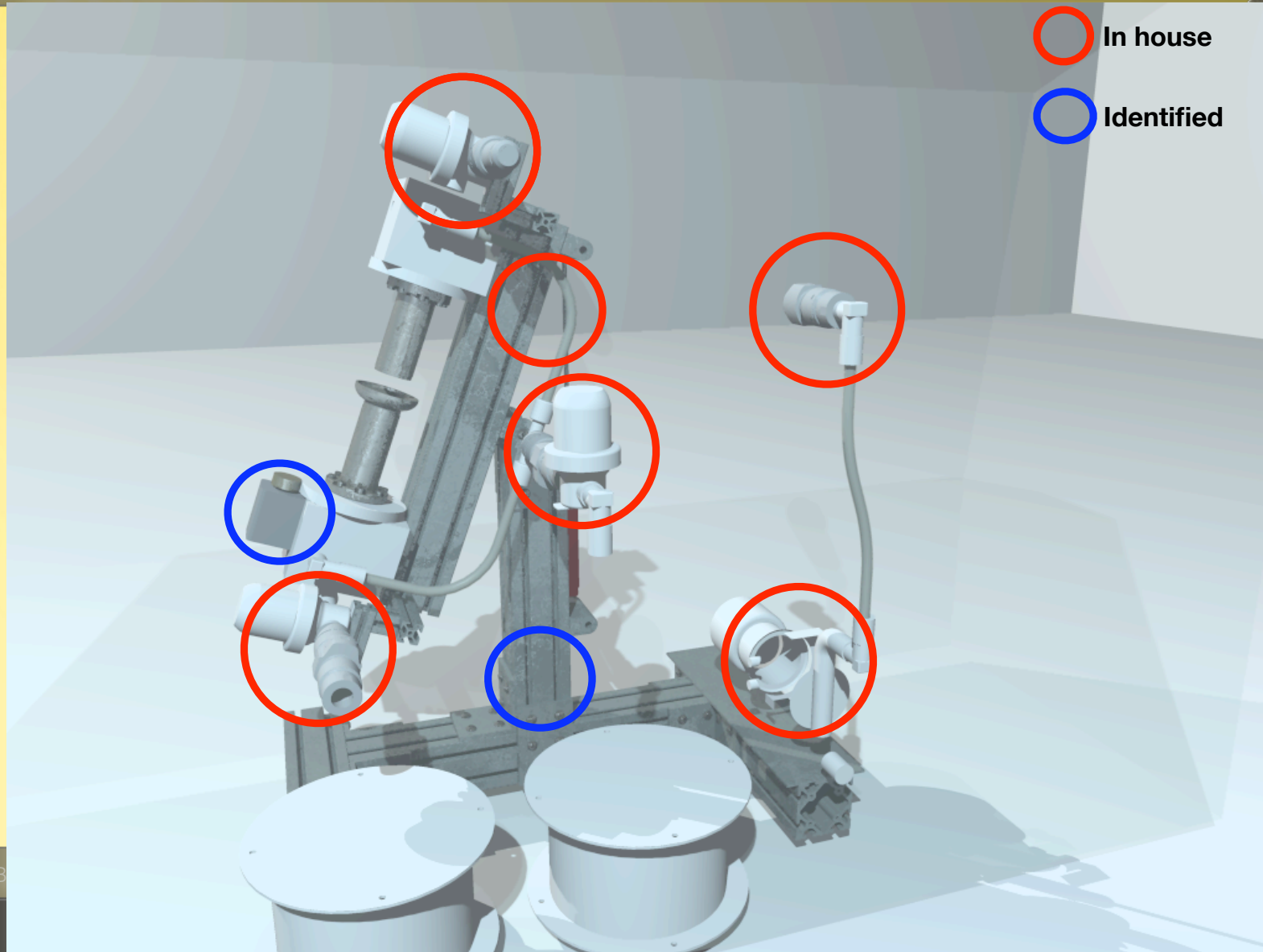


# EP 1-cell setup

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-  In house
-  Identified



C. B.



- ☆ EP Tool upgrade
- ☆ S35 procedure baseline
- ☆ Bench-top test

**Visit to J-lab:**

**C. Boffo 2 weeks EP**

**C. Cooper 4 days EP chemical analysis**

**C. Antoine 4 days EP chemical analysis**

**T. Tajima 4 days EP**

**M. Kelly 3 days EP**





# J-Lab effort - EP Tool upgrade



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- ☆ New wireless data acquisition system to be used in the rotating cavity for thermocouples and voltage monitoring
- ☆ New electrical connections at the equator of the cells (DASY at the iris)
- ☆ New plumbing to minimize the acid trapped
- ☆ Successfully performed water test
- ☆ This week they should be able to perform the first EP on an ILC cavity



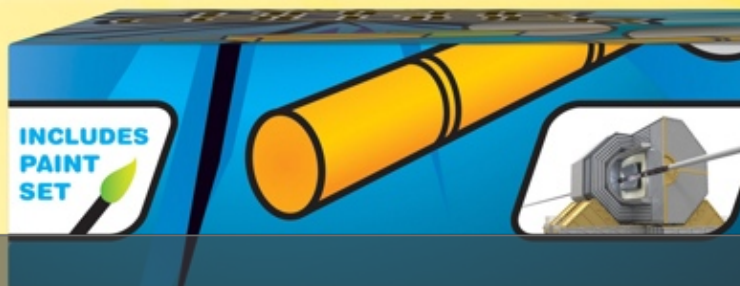
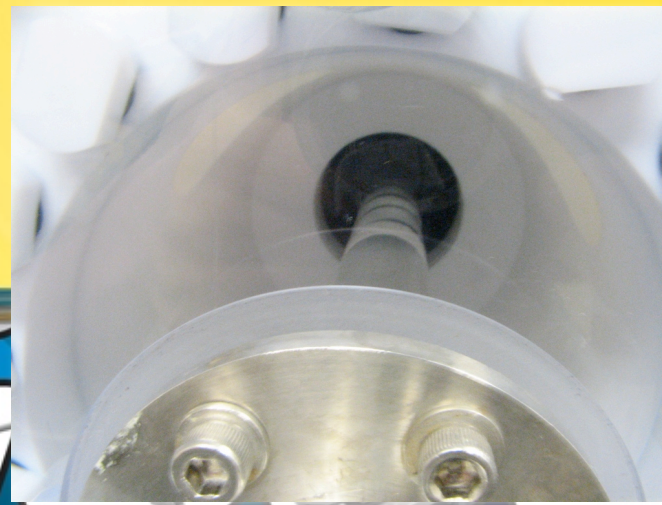
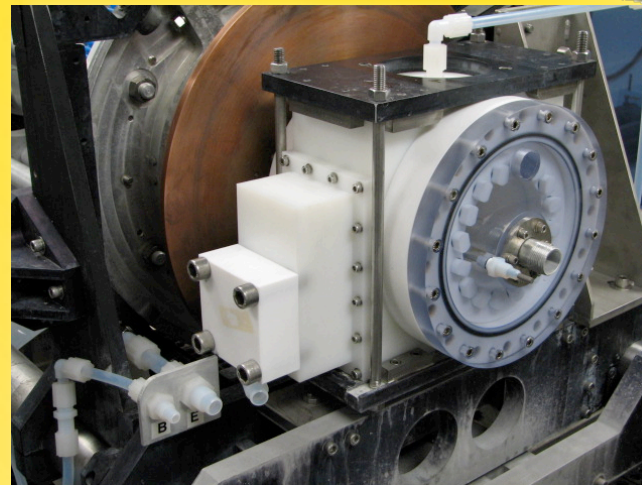
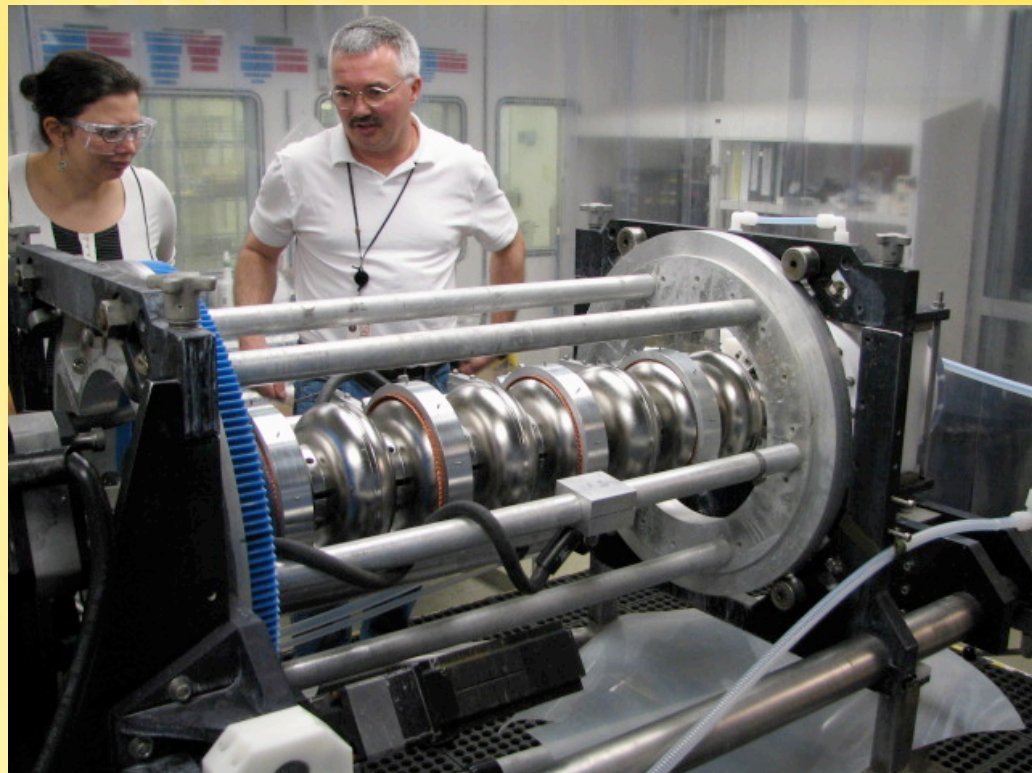
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# J-Lab effort - EP Tool upgrade

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# J-Lab effort - Baseline process performance



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- ☆ Almost completed the first cycle
- ☆ As expected there were several small flaws that had to be corrected
- ☆ Possible problem of identifying the correct drying procedure
- ☆ Amplifier for testing procured by FNAL
- ☆ Test scheduled yesterday

Degreasing

HPR

Initial assembly

HPR

final assembly

connection to test top-plate

low temperature bake

vertical test



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# J-Lab effort - R&D work



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- ★ 1-cell cut along the axis (J. Mammosser M. Kelly C. Boffo H. Tien):
  - ★ Tested with different configurations of the cathode
  - ★ Few polarization curves
  - ★ Probed the electric field in different points
  - ★ next step is to repeat the test adding axial acid flow
  - ★ Will write a technical note



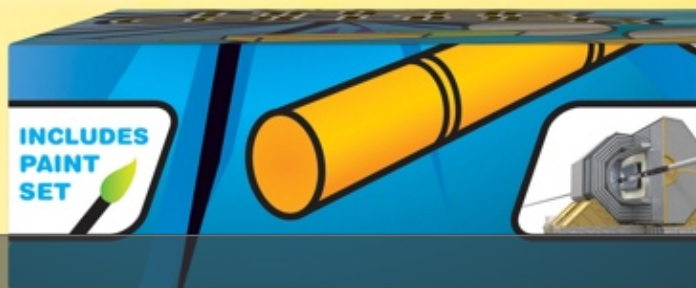
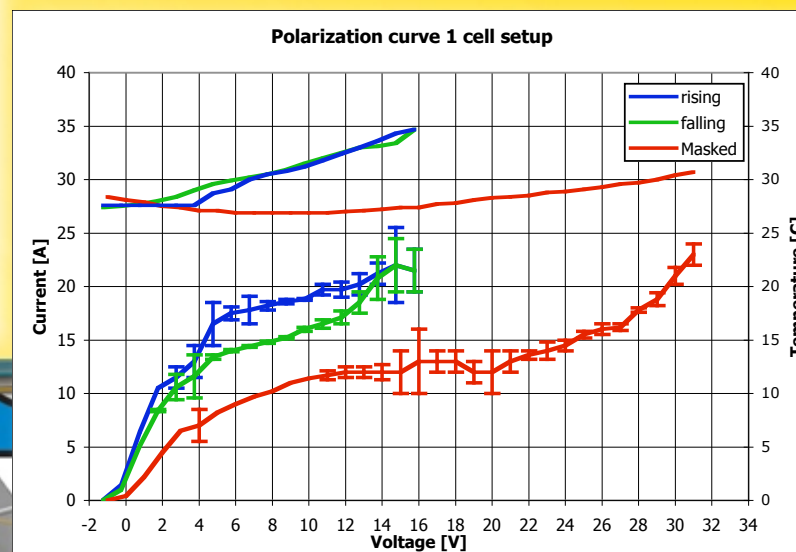
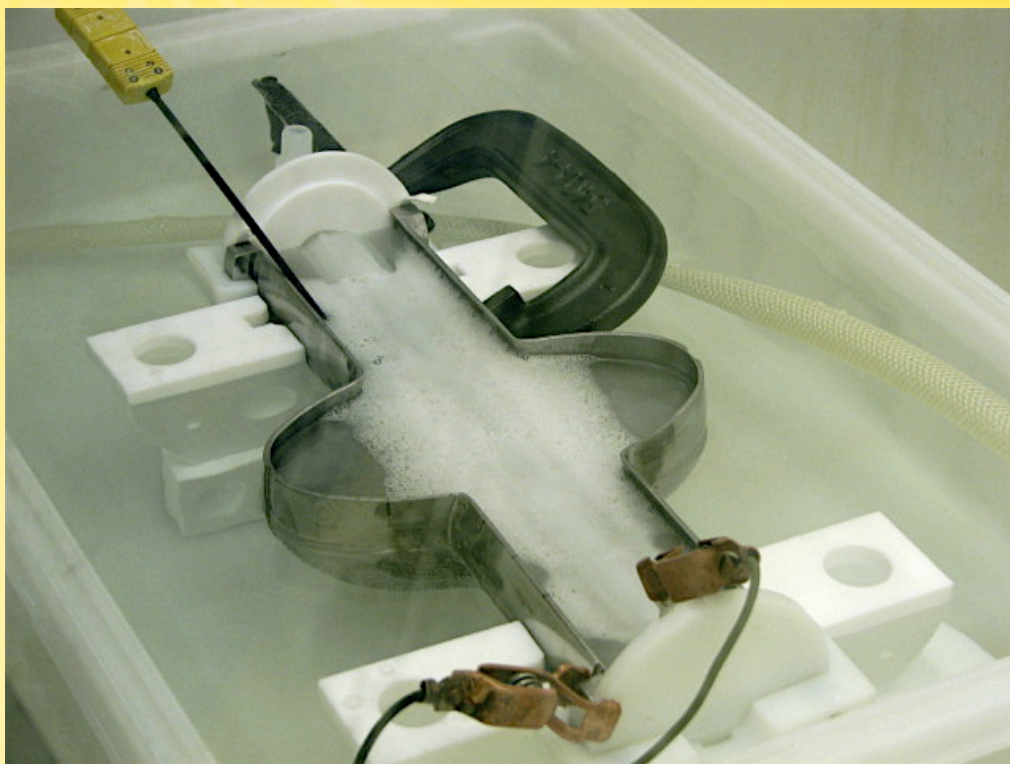
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# J-Lab effort - R&D work



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# J-Lab effort - R&D work



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## ★ Sulfur rinsing:

- ★ performed a second test with the intent of forming sulfur on the surface of a Nb sample
- ★ will use different rinsing techniques including Micro90, Hydrogen Peroxide and hot water

## ★ HF monitoring:

- ★ John and Larry prepared a teflon sapphire holder to check if mass spectroscopy can be used for this task. I will work on the data analysis



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