CM-1 & RFCA002 (CM-2) Status

ILC Cryomodule meeting

29 May 2012

E. Harms & ?/FNAL

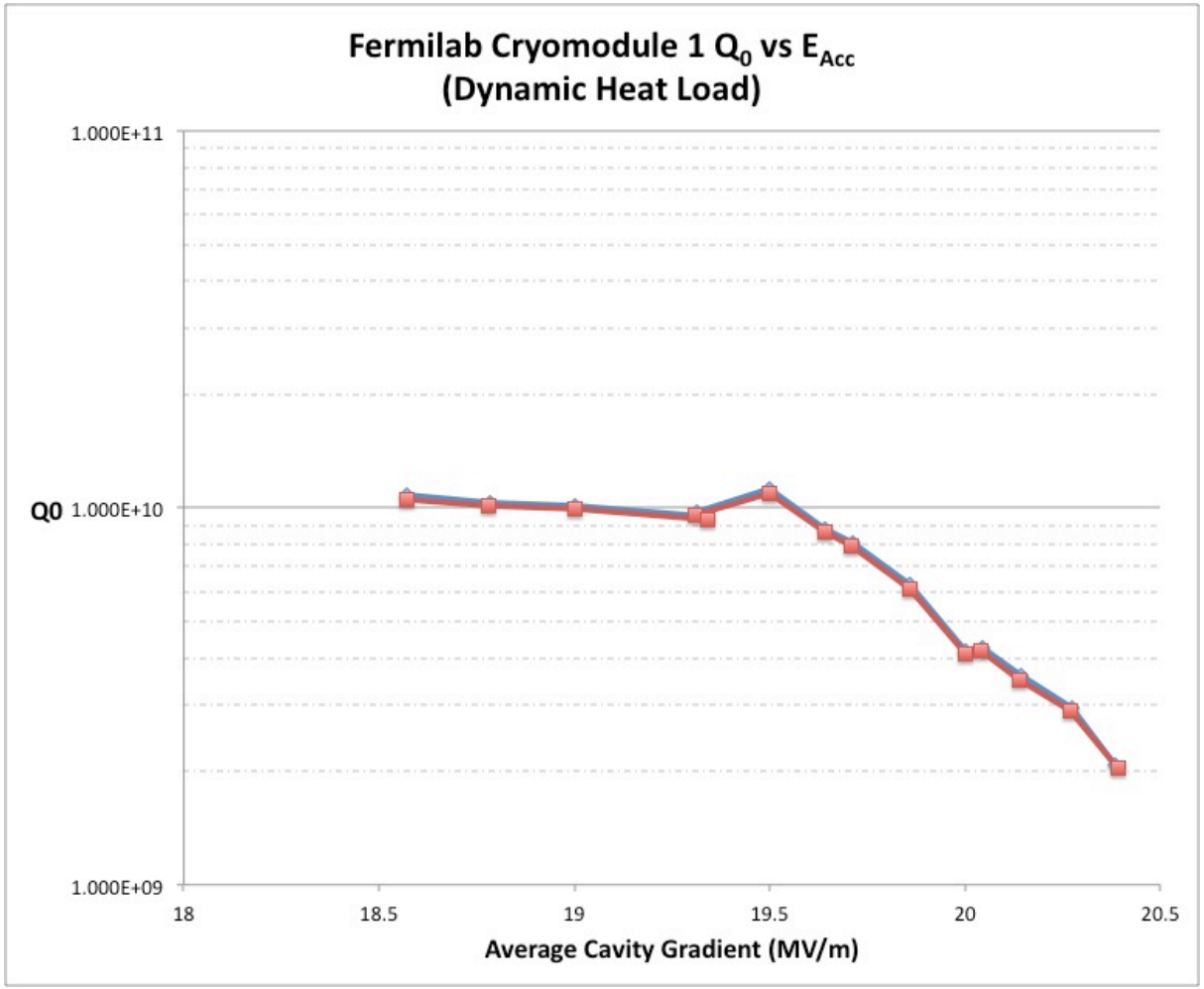
CM-1 Disassembly Plans

- CM-1 is transported back to Industrial Center Building for checkout and disassembly
  - Inspect input couplers for any damage
  - Check thermal intercepts, especially on HOM cans for good contact
  - As found alignment of cavity string once removed from vacuum vessel
  - Investigate tuners and motors, especially ones that stopped functioning (#8) or would stick (#2)
  - Separate cavities in MP-9 clean room, prepare, and re-test low performing ones in HTS
- CM-1 will be re-installed in ASTA as the 2nd operating cryomodule
  - What to do with underperforming cavities: re-process or replace, etc. will be determined after testing

Input from Tug Arkan et al

Module Dynamic Heat Load Measurement

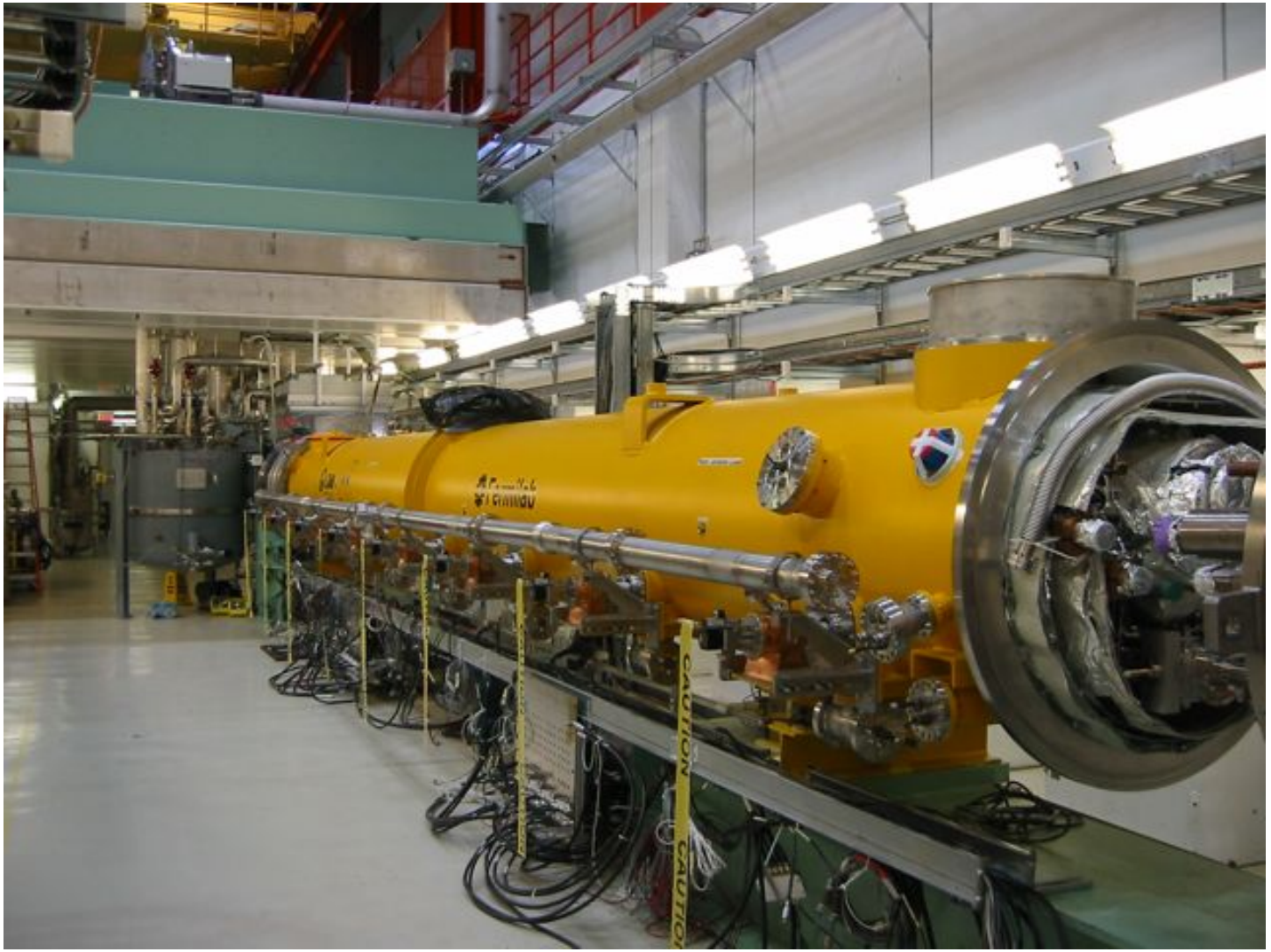
- Static Heat Load
  - Total ~37 Watts
  - CC-2 ~15 Watts
  - **CM-1 ~24 Watts**



RFCA002 Installation

- To avoid confusion between location in accelerator and component, we will refer to CM-2 by its component name: RFCA002.
- Cryomodule is installed in ASTA on 18 May; checkout and connection has begun
  - Vacuum work
  - Cryogenic piping preparation
  - Electrical checkout and cable hookup
  - RF measurements
  - Alignment

RFCA002 Installation



Courtesy of Jerry Leibfritz

RFCA002 Short-term Schedule

- Already Completed
  - Alignment
  - Electrical checkout
- 28 May – 1 June
  - Complete cabling
- 4 - 8 June
  - Preparation for Warm coupler conditioning
  - RF system/klystron re-calibration
  - Couplers and Cavities under active pumping
- 12 - 16 June
  - Initiate warm coupler conditioning (one cavity at a time)
- Remainder of June
  - Finish Coupler Conditioning
  - Complete installation
  - Cryogenics interconnects
  - Leak checks, pressure tests, safety approval
- ~28 June
  - Initiate Cooldown

RFCA002 Cavity Performance

Cavity	Last Vertical Test	Last Horizontal Test*
TB9AES008	41 MV/m	>35 MV/m
TB9RI018	39 MV/m	>35 MV/m
TB9AES010	38 MV/m	>35 MV/m
TB9RI019	38 MV/m	>35 MV/m
TB9ACC016	37 MV/m	19 MV/m
TB9AES009	36 MV/m	35 MV/m
TB9RI027	40 MV/m	>35 MV/m
TB9RI028	39 MV/m	33 MV/m

**Administrative Limit of 35 MV/m for Peak Gradient at HTS*

Courtesy of Andy Hocker

For cold operation (at least until all cavities are characterized and initial cryomodule operation completed) we will not exceed 31.5 MV/m.

Fermilab

ilc

Thank you for your attention