



FRIB Technology Demonstration Cryomodule Test

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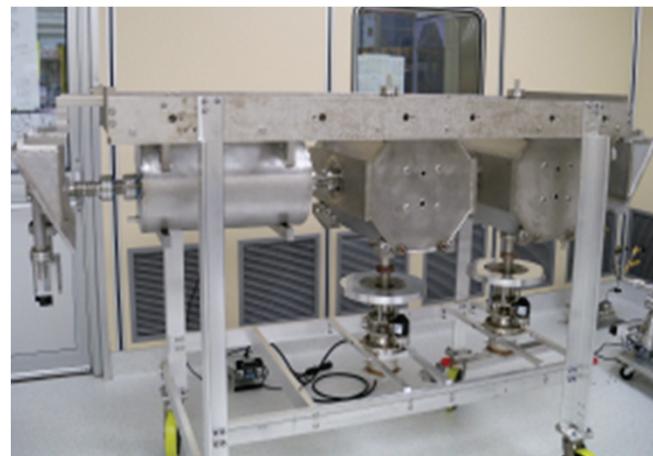
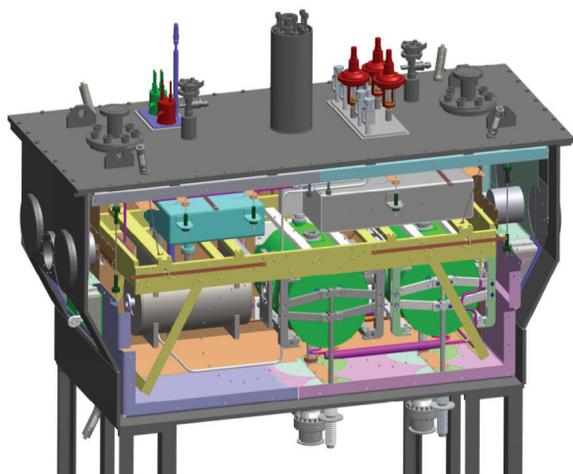
U.S. DEPARTMENT OF
ENERGY

Office of
Science

This material is based upon work supported by the U.S. Department of Energy Office of Science under Cooperative Agreement DE-SC0000661.
Michigan State University designs and establishes FRIB as a DOE Office of Science National User Facility in support of the mission of the Office of Nuclear Physics.

FRIB Test Cryomodule Features

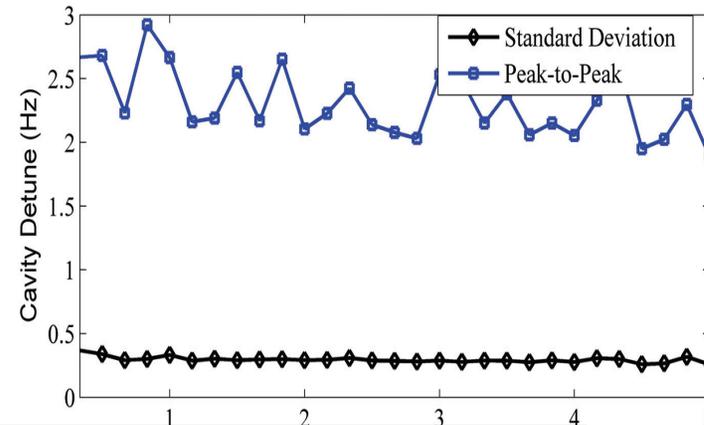
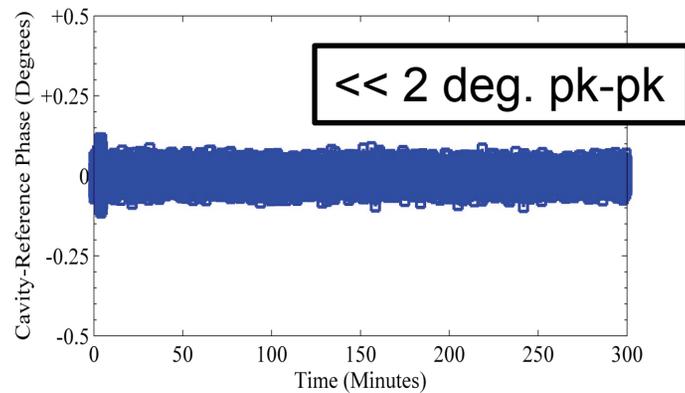
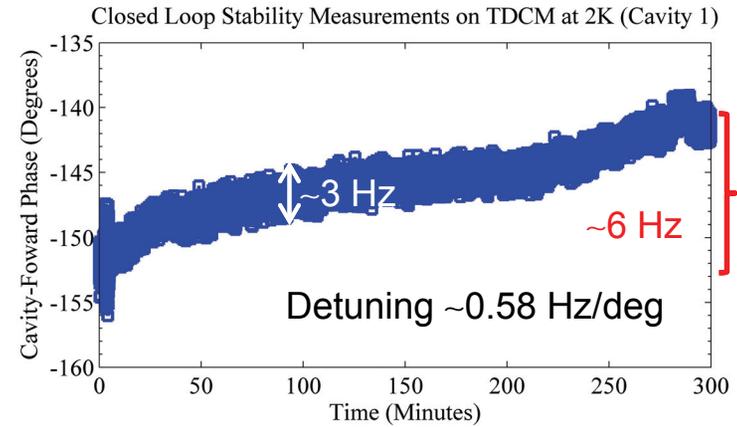
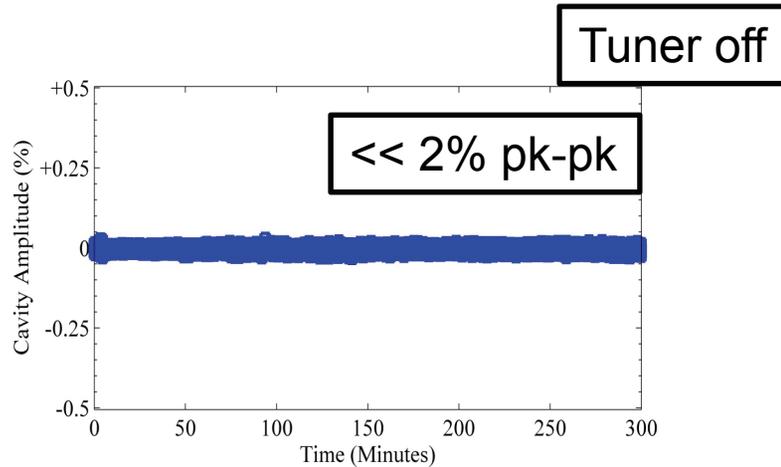
- Two 322 MHz half wave resonators ($\beta=0.53$)
 - original prototype EM design
 - RF couplers (based on SNS coupler)
 - Scissor jack tuning mechanism
- One 9T Solenoid
- Separated LHe circuits
 - 4K for Magnet
 - 2K for cavities
- Global magnetic shield



Poster / Paper Outline

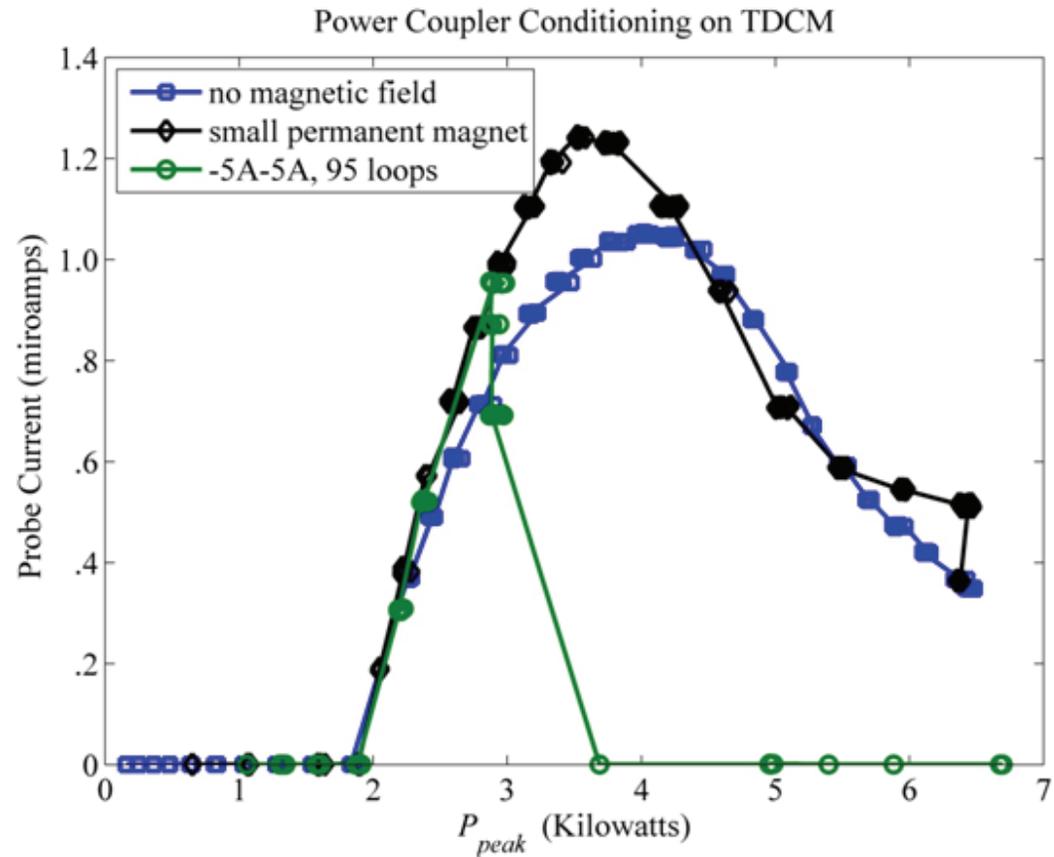
- TDCM Development lead SRF experience in establishing
 - Processing procedures
 - Infrastructure requirements
 - Quality Assurance
 - » e.g. HPR times & diagnostic tools, furnace treatment, vertical test methods, power coupler conditioning & preparation.
- TDCM Testing, Results, and Next Tests
 - RF Controls
 - Cryogenic static & dynamic loads
 - Tuner actuation
 - RF couplers
 - Magnetic shielding, magnetic field interactions

RF Amplitude & Phase Stability



With tuner on, the control parameters were a bit worse.

RF Couplers Multipacting



Coupler was conditioned and operated for 5hr without any quench by applying solenoid coil (5.3A, 6G).

Thanks!

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- **ACKNOWLEDGMENTS**

- The authors would like to thank Greg Velianoff, Jon Wlodarczak, Tom Russo, John Brandon, Mike Holcomb, and Jie Wei for their help in late night and evening shifts during RF conditioning; JLab for degassing the HWR's installed in the TDCM; Peter Kneisel, Curtis Crawford, and Bob Laxdal for their advice given regularly in weekly teleconference.