RFCC build overview

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Outline



- RFCC system overview
- Component status
 - ➡ Coil
 - Cryostat (vacuum vessel, shield, cooling circuit)
 - ➡ RF
- Component Integration
- MTA and the single cavity test
- RFCC status

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Component status: coil



- Long initial training, but reached required field
- Very good memory



⇒Proceeding with next coil winding



Next coil being wound



- Minimal changes to design
 - on-site review, documented modifications;
 - go-ahead given to Qi Huan and fabrication is on-going

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05/28/2014

05/27/2014 16:07



- Vessel leak-checked, packaged, ready to ship to FNAL
- Tower arrived back at LBNL (need leak-checking, weld inspection)
- Ship ensemble in <3 weeks



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Component status: shield



- New design to facilitate installation
 - preliminary model from FNAL, needs review and detailing







- Significant modeling of tower cryogenic circuits
 - needs design review, detailing, and fabrication of sub-assemblies





Component status: cavity



- Cavity bodies available (10 fabricated)
 - ➡ Frequency-measurement and tune to a center frequency
 - ➡ Final EP needs to be done (one done, now at SCTS)
- RF tuner arms (24) available
 - ➡ Final set (24) of actuators needs to be fabricated
- Need 8 couplers (2 in SCTS; probably want 2 spares)
- RF ceramic windows (10) available (2 used in SCTS)
- Be windows (11) available

First cavity being readied for testing in the single-cavity test stand at the MTA





Integration: magnet system





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• Dummy wood "coil" built to facilitate assembly tooling design



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RFCC module integration





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- Major mechanical assembly complete
 - several fixtures built and successfully used
 - ➡ cavity installed in vacuum vessel with new struts
- Tuner system installation complete
 - ➡ tuner forks trimmed, installed, shimmed on cavity
 - actuators modified/reinstalled
 - ➡ transfer function measured
- Coupler fabrication complete at LBNL
 - couplers installed and adjusted on cavity
- Extensive instrumentation for cavity built/being installed
- RF amplifier controls modified, tested
- Hall infrastructure prepared
 - new overhead crane installed for lifting vessel
 - ➡ vacuum, air, water, RF plumbing parts in hand





RFCC #1 status



- Second coil started last week
- Magnet cryostat nearing completion (main vessel and tower)
- Cooling circuit design being finalized
- Cavity bodies available (10 fabricated)
 - ➡ Frequency-measurement and tune to a center frequency
 - ➡ Final EP (9) need to be done
- RF tuner arms available
 - → Final set of actuators (24) needed to be fabricated
- Both ceramic and Be RF windows available
- RF SCTS test nearly ready
- Need 8 couplers (2 in SCTS; probably want 2 spares)
 - → Final assembly to begin in October (?)