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FNAL test facility

Monday 31 March 2025 15:20 (30 minutes)

Oral presentation (20 min) + Q&A (10 min)

This presentation will focus on the current testing capabilities for superconducting magnets at Fermilab, highlighting existing systems, recent upgrades, and future plans. The Vertical Magnet Test Facility (VMTF) remains a cornerstone for testing superconducting magnets in R&D applications, maintaining its established capabilities. Stand 4 continues to support the Hi-Lumi AUP production line of magnets in cryostats and has achieved significant improvements through a redesign of lead connections, resolving issues with liquid helium levels and resistance, culminating in a successful endurance test without interruption. Similarly, Stand 7 underwent commissioning and a lead redesign to reduce heat load, while its core testing capabilities remain unchanged. Looking forward, Stand 3 is undergoing a redesign, with plans to restart and begin commissioning by the end of 2025, introducing new features such as background magnetic field testing and upgraded power supplies. Fermilab is also advancing the High Field Vertical Magnet Test Facility (HFVMTF), designed to support the fusion and magnet R&D program, with commissioning scheduled for 2025 and critical components, including the cryostat and power supplies, being delivered. Enhancing all operations, the newly commissioned IB1 cryoplant now offers automated overnight helium production and efficient transfer to a 10,000-liter dewar, streamlining support across all test stands. This talk will provide a comprehensive overview of testing capabilities, and showcasing how Fermilab is advancing its capabilities to meet the evolving demands of superconducting magnet testing.

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