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## M3Or4B-05: [Invited] Advancing Cryogenic Material Testing for High-Field Superconducting Magnets

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High-field superconducting magnets rely on precise knowledge of material properties at cryogenic temperatures to optimize performance and ensure long-term reliability. However, essential datasets —particularly for transport properties, thermal contraction, and mechanical behaviour—are often incomplete or entirely lacking. In this talk, we present recent results from cryogenic material characterization, showcasing key measurements that contribute to a better understanding of these materials. Additionally, we introduce the testing capabilities of the CERN Measurement Laboratory (MML), which provides a versatile platform for evaluating materials and components under extreme conditions. More importantly, the goal of this talk is to initiate a discussion within the magnet community about the critical need for a comprehensive and reliable dataset of cryogenic material properties. By identifying gaps and priorities, we aim to foster collaboration and pool resources to better support the development of next-generation superconducting magnets.

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