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US MD Program - Road Map. Test Infrastructures

Monday 31 March 2025 16:30 (30 minutes)

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

The US Particle Physics community has completed its decadal planning process, culminating in the Particle Physics Project Prioritization Panel (P5) report [1]. Over the last year the US Magnet Development Program has worked to update its its research roadmap to align with the P5 strategy, and in particular is focusing on developing magnet technology that can enable the primary 10TeV Parton Center of Mass colliders such as the FCC-hh and the muon collider.
We will provide an overview of of the updated MDP roadmap, and describe progress over the last couple of years in both LTS and HTS accelerator magnet technology in the US. A major thrust of the program in the coming years will be the testing of HTS "inserts"in Nb3Sn "outsert"dipoles, requiring advances and improvements in MDP test facilities to enable independent powering and energy extraction of the HTS and LTS magnets. Advances are also required in our ability to model and diagnose quench initiation and the energy extraction process, and to determine design and test parameters that enable safe operation without degradation to the conductor, and program elements are designed to help address these issues.

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