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Fusion coil testing at MIT/CFS

Tuesday 17 June 2025 17:30 (1 hour)

This talk will describe the Superconducting Magnet Test Facility at MIT's Plasma Science and Fusion Center, starting with the facility's origin during the SPARC toroidal field model coil project, and following through its development to test subsequent magnets, including the SPARC central solenoid model coil. A discussion of the challenges of these projects will be included, from the scale of the devices to their compressed timelines. A summary of operations and highlights of the tests will also be included, including performance of the cryogenic systems, as well as the quench detection and fast discharge systems, and modifications to facilitate Paschen testing of the CSMC.

About the lecturer:

Ted Golfinopoulos is responsible for the Plasma Science and Fusion Center Superconducting Magnet Test Facility, having led its construction for the SPARC Toroidal Field Model Coil from 2019-2021. Alongside his colleagues at the MIT PSFC and at Commonwealth Fusion Systems, he has tested every research coil in the SPARC lineage, and contributes generally to magnet analysis and testing programs within the project. Recently, he is also engaged with Type One Energy in their collaboration with the PSFC SMTF for testing their "M0" model coil, and additional partnerships are expected in the near future for HTS R&D. He has been at MIT's PSFC for 16 years. He is a reforming plasma physicist, having completed his doctorate at MIT's PSFC on the Alcator C-Mod tokamak in 2014, though he still contributes to the research program on the TCV tokamak at EPFL, as well as on MHD scoping for SPARC. Prior to this, he worked briefly at the MIT's Electrochemical Energy Lab on solid oxide fuel cells.

Presenter: Dr GOLFINOPOULOS, Theodore (Massachusetts Institute of Technology)