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Progress of the TESSERACT Dark Matter Experiment

Thursday 9 October 2025 10:00 (15 minutes)

The TESSERACT experiment will deploy 3 unique detector modules based on a common transition edge sensor-based readout to search for sub-GeV dark matter. HeRALD will use sensors with silicon or sapphire substrates to image radiative and quasiparticle emission from a target of superfluid helium-4. SPICE will use sensors fabricated on sapphire and gallium arsenide substrates sensitive to both scintillation and heat signals produced by dark matter scattering within the substrates. Finally, a third module will use silicon or germanium substrates with applied electric fields and simultaneous charge readout. I will give an overview of the status of TESSERACT as we move toward deploying these modules for extended dark matter searches in Modane Underground Laboratory in 2028.

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