

The TESSERACT Project

Saturday 1 April 2023 11:00 (15 minutes)

The TESSERACT project will search for sub-GeV dark matter via multiple complementary advanced, ultra-sensitive phonon detectors, sensitive to nuclear-type, electron-type, and dark photon-type DM interactions, using targets of liquid helium (HeRALD) and the polar crystals GaAs and Sapphire (SPICE). Those detectors will share identical readout and experimental settings. Besides maximizing sensitivity, this multi-target approach also allows us to identify and discriminate against novel instrumental and physical backgrounds. The experiment is presently in a period of targeted R&D with the first physics results based on demonstrator setups to be expected this year. We will present the status of the experiments and sensors, expected sensitivities, and possible ways to achieve sub-MeV dark matter mass sensitivity.

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Session Classification: SESSION 18: Direct detection: Light DM & Ultra-Light DM (Axions, ALPs, WISPs) searches-2 (CHAIR: Sebastian Baum- Stanford University)