

Recent progress towards the HeRALD detector for light dark matter with superfluid helium

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The TESSERACT suite of experiments will deliver sensitivity to multiple models of sub-GeV dark matter via complementary targets, including GaAs and sapphire (referred to as SPICE) and superfluid helium (referred to as HeRALD). HeRALD uses the same TES sensor technology as SPICE to read multiple signal channels from superfluid helium: prompt scintillation, rotons, and triplet excimers. I will discuss recent R&D towards the realization of the HeRALD concept, its advantages in the discrimination against stress-induced instrumental backgrounds and physical backgrounds with multiple signal channels, its projected sensitivity, and plans for underground deployment.

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