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## Direct-Detection of Sub-GeV Dark Matter: A New Frontier

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Direct-detection searches have traditionally focused on Weakly Interacting Massive Particles (WIMPs) with masses above the proton (about  $1 \text{ GeV}/c^2$ ). However, many natural dark-matter candidates have masses below the proton and are invisible in traditional WIMP searches. In this talk, I will provide an overview of the search for particle dark matter with masses between about  $1 \text{ meV}/c^2$  to  $1 \text{ GeV}/c^2$  (“sub-GeV dark matter”). I will highlight both the tremendous progress made in the past few years as well as the challenges faced by these searches. I will also describe how progress in this area relies on the exciting interplay between various subfields of physics, including particle physics theory and experiment, cosmology, astrophysics, condensed matter physics, quantum sensing, and instrumentation. Finally, I will discuss how PAUL can contribute to this exciting research field.

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