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## First Direct Detection Limits on sub-GeV Dark Matter and Future Prospects

*Thursday, 18 October 2012 12:10 (35 minutes)*

Direct dark matter (DM) detection experiments almost always focus on Weakly Interacting Massive Particles (WIMPs), which have a mass in the 1–1000 GeV range. However, what if DM is not a WIMP? In this talk, new direct detection strategies for DM particles with MeV to GeV mass will be presented. In this largely unexplored mass range, DM can scatter with electrons, causing ionization of atoms in a detector target material and leading to single- or few-electron events. I will present the first direct detection limits on DM as light as a few MeV, using XENON10 data. Theoretically interesting models can already be probed. Significant improvements in sensitivity should be possible with dedicated experiments, opening up a window to new regions in DM parameter space.

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