

## Materials design for dark matter detection

*Tuesday, January 29, 2019 10:00 AM (25 minutes)*

The direct detection of light dark matter (DM) relies on harnessing low-threshold events in target materials. Here I will discuss two proposals for the direct detection of light DM; Dirac materials and polar semiconductors. Using first-principles methods, we calculate the material-specific matrix elements, and show that DM scattering in an anisotropic crystal has a strong directional dependence. We find that both Dirac electron and phonon-based detectors have comparable or greater sensitivity to sub-MeV dark matter scattering and sub-eV dark matter absorption than other current proposals.

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