## Spin-dependent scattering of sub-GeV dark matter in crystal targets

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In recent years, attention has shifted to probes of sub-GeV dark matter. In this work, we explore the direct detection prospects of crystal targets through their single (or multi) phonon response to dark matter scattering in the keV-GeV mass range, which couples effectively to protons/neutrons via spin-dependent interactions. In particular, we consider coupling the SM to the dark matter through a pseudo scalar, scalar or pseudo vector mediators, summarizing the bounds obtained from meson decays, beam-dumps, supernova SN1987A and dark matter self-interactions. Finally, we present our results for the scattering cross-section in GaAs and sapphire crystal targets.

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