

Novel crystal responses to general dark matter-electron interactions

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Direct detection experiments probing dark matter scattering off electrons in semiconductors provide leading constraints on sub-GeV dark matter. In this work, we model these interactions using non-relativistic effective operators, and identify and compute five dark matter and crystal response functions, four of them for the first time. We then use these responses to calculate the expected excitation rates in Silicon and Germanium crystals, and compute exclusion limits based on published experimental results.

Abstract Track

Flash talk, Astroparticle physics

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