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Dark Matter Searches with Qubits

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Dark Matter searches utilizing single-photon and phonon excitations have been broadly accepted as effective methods of harnessing the miniscule energies transferred from Ultra-light and Light Dark Matter. Qubits are highly sensitive to sub-eV energy phonons and photons which make them a compelling detection technology for light and Ultralight Dark Matter. We will discuss the potential of this novel idea while providing a proof-of-principle demonstration of this technology and an overview of a brand-new R&D program at Fermilab.

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