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Paleo Detectors of Dark Matter

Paleodetectors provide an alternative approach to the detection of Dark Matter–nucleon interactions. One can search for the persistent traces left by Dark Matter scattering in ancient minerals obtained from much deeper than current underground laboratories. The sensitivity of paleo-detectors extends down to the neutrino floor for a wide range of Dark Matter masses. With readily available O(500)Myr old minerals, paleo-detectors can probe spin-independent WIMP-nucleon cross sections 2–3 orders of magnitude lower than current direct detection limits for most of the WIMP mass range.

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