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Earth-Catalyzing Detection of Magnetic Inelastic Dark Matter

Monday 8 May 2023 15:30 (15 minutes)

Inelastic dark matter with moderate splittings, $\mathcal{O}(\text{few to } 150)$ keV, can upscatter to an excited state in the Earth, with the excited state subsequently decaying, leaving a distinctive monoenergetic photon signal in large underground detectors. I'll show that proposed large volume gaseous detectors (CYGNUS) will have excellent sensitivity to this signal. I'll compare and contrast the photon signal to the standard nuclear recoil signal (from, in this case, upscattering) that Xenon detectors are sensitive.

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