

# Annual Modulations of the Angular Recoil-Flux/Energy Distributions of WIMP-Scattered Target Nuclei Observed at an Underground Laboratory

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While most direct Dark Matter detection experiments measure only the recoil energies of (elastic) WIMP-nucleus scattering events deposited in underground laboratory detectors, “directional” DM detection experiments aim to provide 3-dimensional information (recoil tracks and/or head-tail senses) of WIMP-scattered target nuclei, as a promising experimental strategy for discriminating WIMP signals from backgrounds. In this talk, I will first introduce briefly our double-Monte Carlo scattering-by-scattering simulation package for 3-dimensional elastic WIMP-nucleus scattering. Then I will demonstrate and compare the “annual modulations” of the angular distributions of the recoil direction (flux)/energy of target nuclei observed in different underground laboratories. The impacts of the cross section (nuclear form factor) suppression as well as some common misunderstandings in literature will particularly be discussed in detail.

## Reference to paper (DOI or arXiv)

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## Your gender (free text)

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