

KEK Theory Meeting on Particle Physics Phenomenology (KEK-PH2018 winter) and 3rd KIAS-NCTS-KEK workshop on Particle Physics Phenomenology

Contribution ID: 15

Type: **not specified**

## The Inelastic Frontier at DM and Neutrino detectors

*Thursday, 6 December 2018 09:00 (30 minutes)*

There exist well motivated models of particle dark matter which predominantly scatter inelastically off nuclei in direct detection experiments. This inelastic transition causes the DM to up-scatter in terrestrial experiments into an excited state heavier than the DM itself. The relative competitiveness of DM search experiments is governed by the upper bound on the recoil energies employed by each experiment, as well as strong sensitivity to the mass of the heaviest element in the detector. Several implications, including sizable recoil energy-dependent annual modulation, and improvements for future experiments are discussed. I will also discuss how low threshold neutrino detectors can be used to search for the de-excitation of iDM which has up scattered in the Earth.

**Presenter:** FOX, Patrick (Fermilab)

**Session Classification:** Plenary Session