Contribution ID: **160** Type: **not specified**

Inelastic Dipole Dark Matter at FASER

Monday 9 May 2022 17:15 (15 minutes)

Inelastically coupled dark matter has the well-known advantage of evading direct detection bounds, given a sufficient mass splitting Δ between 2 dark states, χ_1, χ_0. One of the simplest couplings one can add to the standard model (with no additional dark states) are the non-renormalizable dipole operators, where χ_0, χ_1 inelastically couple to the SM photon. This minimal model gives the interesting monophoton decay signature of $\chi_1 \to \chi_0\gamma$. Furthermore, relic abundance can be achieved via freeze out through t(s)-channel (co-)annihilation. In this talk, I discuss this model, bounds constraining the coupling and mass splittings at existing experiments, and demonstrate FASER's ability to rule out unprobed regions of interesting parameter space.

Author: FIEG, Max

Presenter: FIEG, Max

Session Classification: DM II