

# Constraining Non-Standard Dark Matter-Nucleon Interactions with IceCube

Executive Summary

## **ABOUT**

- Non-relativistic effective theory of DM-nucleon interactions including velocity and momentum dependent interactions
- IceCube can constrain these interaction types by solar DM search in neutrino fluxes

## **RELEVANCE**

- Generalize indirect dark matter searches
- Go beyond standard SD/SI framework

## **WHAT WAS DONE**

- Calculated capture rates in the Sun
- Interpreted capture rate limits from two IceCube solar DM analyses

## **RESULTS**

- Upper limits on the 14 isoscalar and 14 isovector coupling constants of the non-relativistic effective theory of DM-nucleon interactions for DM particles with spin  $1/2$
- Studied parameter dependency on velocity distribution and solar model