

# Dark matter and neutrino physics with CEvNS

*lundi 30 mai 2022 17:10 (20 minutes)*

In this talk I will discuss the effect of Coherent Elastic neutrino Nucleus Scattering (CEvNS) observations on dark matter (DM) models mediated by a  $Z'$  boson. In these models a  $U(1)'$  gauge symmetry is introduced under which SM particles and dark sector fermions are charged. Several anomaly-free models are presented and we analyze the effect of the  $U(1)'$  interaction between quarks and lepton in CEvNS, collider, beam dump and oscillation experiments. The  $Z'$  mediated interaction of DM with leptons drives the freeze-out process, while the interaction with quarks leads to direct detection (DD) of DM. We comment on the prospect of detection in next generation DD experiments, particularly in the Scintillating Bubble Chamber collaboration.

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