

Contribution ID: 2652 Type: Oral Competition (Graduate Student) / Compétition orale (Étudiant(e) du 2e ou 3e cycle)

Dark Absorption in SuperCDMS Soudan

Wednesday 5 June 2019 14:30 (15 minutes)

The Super Cryogenic Dark Matter Search (SuperCDMS) uses cryogenic semiconductor detectors to search for dark matter, primarily in the form of Weakly Interacting Massive Particles (WIMPs) scattering off of target nuclei. However, there are promising dark matter candidates that are absorbed by bound electrons in a manner analogous to the photoelectric effect, a process referred to as dark absorption.

The dark photon is a hypothetical new massive vector boson, which acts as a mediator between the visible and hidden sectors by kinetically mixing with the Standard Model photon. Axions and axion like particles (ALPs) are pseudoscalar bosons that result from the spontaneous breaking of a new global symmetry. Relic dark photons and ALPs are both viable dark matter candidates to which SuperCDMS would be sensitive.

I will discuss the use of data from SuperCDMS Soudan to set limits on the kinetic mixing of dark photons and the effective coupling strength of ALPs.

Author: FASCIONE, Eleanor (CERN)

Presenter: FASCIONE, Eleanor (CERN)

Session Classification: W2-5 Dark matter searches (PPD) | Recherche de matière sombre (PPD)

Track Classification: Particle Physics / Physique des particules (PPD)