

Spring 2019 Colloquium

Department of Physics & Astronomy, TAMU-Commerce

Feb 21, Thursday, 4-5 PM in Science Building 127

(coffee and cookies will be served at 3:50 PM)

Dark Matter Physics

Whispers in the Dark: Searching for Dark Matter with the SuperCDMS Experiment

Dr. Jodi Cooley

Southern Methodist University



Dr. Jodi Cooley is an Associate Professor in the Department of Physics at SMU. She received a B.S. degree in Applied Mathematics and Physics from the University of Wisconsin in Milwaukee in 1997. She earned her Masters in 2000 and her Ph.D. in 2003 at the University of Wisconsin - Madison for her research searching for neutrinos from diffuse astronomical sources with the AMANDA-II detector. Upon graduation she did postdoctoral studies at both MIT and Stanford University. Dr. Cooley is a Principal Investigator on the SuperCDMS dark matter experiment. She has won numerous awards for her research, teaching and mentoring. In

2018 she was elected a fellow of the American Association for the Advancement of Science (AAAS) for her contributions to the search for dark matter scattering with nuclei, particularly using cryogenic technologies.

<http://www.physics.smu.edu/cooley/>

Abstract

The existence of dark matter was first postulated in the early 1930s to account for the orbital velocities of stars in the Milky Way and motion in galaxy clusters. Since that time, astrophysicists and astronomers have produced compelling evidence for the existence of dark matter and determined that it constitutes the bulk of the matter in the Universe. Despite this fact, the composition of the dark matter remains unknown. Working in a low-background environment in the Soudan Mine, located in northern Minnesota, the SuperCDMS experiment was designed to directly detect interactions between dark matter and nuclei in its target Ge crystals and operated for over a decade. In this talk, I will explain how the experiment works and share recent results and plans for the next generation SuperCDMS SNOLAB experiment which will begin taking science data in 2020.