

# Searching for Dark Matter with Athermal Phonon Detectors Throughout the Mass Range from 50meV through 500MeV

*Thursday, 20 February 2020 17:00 (30 minutes)*

Substantial astronomical observations have established that approximately 25% of the energy density of the universe is composed of cold non-baryonic dark matter, whose detection and characterization could be key to improving our understanding of the laws of physics. Over the past three decades, physicists have largely focused on searching for dark matter within the 10 GeV-1 TeV range (WIMPs), unfortunately without success. These experimental failures and recent theoretical realizations, have motivated new experimental searches for dark matter with much lower masses.

In this talk, we'll discuss the experimental requirements when searching for dark matter throughout the mass range from 50meV- 500 MeV. We'll also discuss recent R&D breakthroughs in athermal phonon sensor technology that will enable experiments that are being proposed using silicon, polar crystal and superfluid He as the detector material.

**Presenter:** PYLE, Matt (Berkeley)

**Session Classification:** Evening session