

COLLOQUIUM

Department of Physics, Temple University

**Detecting Cosmic Neutrinos with IceCube at the
South Pole**

**Naoko Kurahashi Neilson
Drexel University**

The universe has been studied using light since the dawn of astronomy, when starlight captured the human eye. The IceCube Neutrino Observatory, located at the geographic South Pole, observes the Universe in a different and unique way: in high-energy neutrinos. IceCube's discovery of a diffuse flux of astrophysical neutrinos, in other words, neutrinos from beyond the solar system, started an era of neutrino astronomy. I will motivate why neutrinos are a necessary messenger in high-energy astronomy, and review the discovery of the diffuse flux with IceCube. We are tantalizingly close to our big goal of discovering the astronomical sources that emit such astrophysical neutrinos. I will argue why and try to reconcile all results to draw a coherent picture that is the state of neutrino astronomy.

**Monday, February 19, 2018 at 3:00 pm
SERC, Room 116
Refreshments will be served at 2:45 pm**