

# *Colloquium*

**Department of Physics, Temple University**

Neutrinos, Antineutrinos, and No Neutrinos

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University of Pennsylvania

Neutrinos have always been the black sheep of the particle physics world: they make up nothing, they hardly ever interact with normal matter, and they are so light that, for the most part, they can be completely ignored in any reaction in which they do participate. But we now know that neutrinos influence an enormous range of physics. They tell us how the Sun works, they allow us to search for new forces of Nature, and, because they carry no electric charge, they are the only fundamental particle of matter that can be both particle and antiparticle. The talk will discuss new areas of physics that can be explored with neutrinos, and focus in particular on the SNO+ experiment whose goals include a test of whether the neutrino and antineutrino are really the same thing.

**Monday, March 30 2015 at 3:00 pm**

**SERC, Room 110A**

**Refreshments served at 2:45pm**