

Marilena Loverde – Colloquium seminar – March 17, 2022
Stony Brook

Title: Neutrino and Dark Radiation Properties from Cosmic Datasets

Abstract:

Neutrinos and other light relic particles leave a number of imprints in the cosmic microwave background anisotropies and on maps of the large-scale structure of our Universe. These imprints can not only demonstrate the presence of these particles and constrain their masses, but can provide insight into their nature via signatures of interactions or other behavior that changes during the history of the Universe. I will describe this physics, present constraints on non-standard neutrino self-interactions and other forms of dark radiation from cosmic datasets. I will also discuss prospects for detecting neutrino mass and highlight how relic neutrinos force us to adopt new technology when modeling structures in the Universe today.