

# Science Literacy Week: Night Sky, Kepler Mission and Exoplanets

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**DATE:** Friday, September 29, 2017

**TIME:** 3:00 PM

**PLACE:** C2045

**ABSTRACT:** We know that the Standard Model of Particle Physics is incomplete – for example, we still do not understand the nature of dark matter, matter-antimatter asymmetry or hierarchy problem in three generations of particles. There is a wide spectrum of experiments searching for “New Physics”, i.e. new particles and interactions beyond the Standard Model, broadly defined by three domains - Energy, Cosmic and Precision frontiers. The Energy frontier concentrates on the high-energy production of new particles, such as the experiments at the Large Hadron Collider, the experiments at the Cosmic frontier include Alpha-Magnetic Spectrometer or Sudbury Neutrino Observatory, and the Precision frontier is focused on low-energy but very high precision experiments, such as Qweak and MOLLER. We will briefly review the Standard Model of Particle Physics and three frontiers searching for “New Physics”, but will focus on the recent and planned experiments in the Precision frontier specifically. Here, the new physics particles may be present as interaction carriers having a small, but potentially detectable impact on the cross sections. The talk will outline the latest advances in the precision parity-violating searches for the physics beyond the Standard Model in both theory and experiment and explain how hypothetical new physics particles (such as  $Z'$  or dark photon) may influence experimental observables.

**ALL ARE WELCOME!**