

Direct dark matter detection and the neutrino floor

Tuesday, September 13, 2016 3:00 PM (20 minutes)

The search for WIMP dark matter by direct detection faces an encroaching background due to coherent neutrino nucleus scattering. In this talk I will review the various types of neutrino that are backgrounds to direct detection - Solar, supernovae and atmospheric neutrinos - and explain how their presence results in the theoretical limit known as the neutrino floor. The proximity of the neutrino floor to the sensitivity of existing and near future experiments is highly dependent on the uncertainty in the ingredient parameters of the expected signal. In particular, astrophysical uncertainties are crucial to understand when attempting to distinguish WIMPs and neutrinos. I will also outline a possible approach for circumventing the neutrino floor by utilising the unique directional signatures of the WIMP and Solar neutrino event rates.

Summary

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