

Constraining Dark Matter Explanations of the Icecube Neutrino Flux with Fermi-LAT

Tuesday, September 13, 2016 6:10 PM (20 minutes)

Difficulties in explaining the origin of the high energy neutrinos observed by Icecube using traditional astroparticle physics have motivated ideas this flux could in part be due to the decay of PeV scale dark matter. In such scenarios, the decay is necessarily associated with the production of gamma rays at much lower energies that can be observed by Fermi-LAT. This is true even for decays directly to neutrinos due to electroweak corrections. This fact can be exploited to set limits on PeV scale dark matter, which I will present in this talk, using 356 weeks of Fermi data. In particular, I will show that certain scenarios may already be in tension with Fermi, giving an important insight into what models can viably contribute to the Icecube data.

Summary

Primary author: RODD, Nicholas (Massachusetts Institute of Technology)

Presenter: RODD, Nicholas (Massachusetts Institute of Technology)

Session Classification: Neutrinos

Track Classification: Neutrinos