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First Evidence of High-Energy Extraterrestrial Neutrinos at IceCube

Tuesday, September 10, 2013 4:00 PM (20 minutes)

Observing astrophysical neutrinos can provide a unique insight into the acceleration mechanism of cosmic ray sources: because neutrinos should be produced in hadronic interactions and are neither absorbed nor deflected they point directly back to their sources. This talk will cover recent searches in IceCube for high-energy neutrinos (> 100 TeV), which have produced the first evidence for a neutrino flux beyond standard expectations from neutrinos generated by interactions of cosmic rays in the Earth's atmosphere. This includes the observation of events with energies above 1 PeV – the highest energy neutrinos ever observed. The current status of these astrophysical neutrino searches and prospects for the future will be discussed.

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