

Invited talk: Next Steps in Experimental High-energy Neutrino Astrophysics

Friday, 30 October 2015 13:45 (30 minutes)

IceCube's discovery of a diffuse flux of high-energy astrophysical neutrinos has vitalized the emerging field of neutrino astronomy, but many questions remain unanswered. The source populations remain unidentified, and other expected astrophysical high-energy neutrinos, such as those from the GZK process, remain undetected. Details of the energy spectrum and flavor composition also are yet to be understood. The next generation of neutrino observatories will shed light on these and other questions. Large-scale ice and water arrays will instrument from 10 to 100 square kilometers with optical and/or radio detector elements to detect the Cherenkov and Askaryan radiation from neutrino interactions. Other novel approaches include large balloon-borne detectors, or searching for tau neutrino conversion in adjacent mountains. I will survey the status and prospects for a number of these experiments and detail how each aims to further the field in the coming years.

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