University of Crete
Department of Physics

Physics Colloquium

Thursday, 02 October 2025 | 17:00 – 18:00, Seminar Room 3rd Floor

Multi-messenger Astronomy with high-energy Neutrinos

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ABSTRACT

High-energy neutrinos are unique tracer of hadronic acceleration sites. The first milestone in the young field of high-energy neutrino astronomy was the detection of a diffuse flux by the IceCube neutrino observatory in 2013. While roughly 10% of the flux can be attributed to the plane of the Milky Way, the origin of the remaining 90% is still largely unknown. I will discuss candidate source classes, which include close-by Seyfert galaxies, radio and gamma-ray bright blazars, tidal disruption events and interacting supernovae. A promising way to identify the neutrino sources is through their electromagnetic counterparts. A focus of the talk will be on IceCube's realtime system, which identifies interesting neutrino events within tens of seconds and shares their arrival direction with the community to trigger follow-up observations in multiple wavelengths.