

All-Sky Search for Transient Neutrino Sources with IceCube in Real-Time

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Abstract content

The IceCube neutrino observatory is a 1 km³ detector deployed deep into the Antarctic ice sheet. While IceCube has recently discovered a diffuse astrophysical flux of high energy neutrinos, its source is yet to be identified. With a field of view covering the whole sky and continuous data-taking, IceCube is capable of detecting transient sources when one or more high-energy neutrinos arrive, and sending out an alert in realtime to other observatories. Immediate triggering of follow-up observations in the optical, X-ray and gamma-ray regime will increase the discovery potential of astrophysical sources and potentially help to constrain phenomenological models of high-energy neutrino and gamma-ray emission. In this talk a new online analysis of IceCube events is presented. Designed for a realtime identification of neutrinos clustered in space and time, it provides an additional alert channel for events potentially originating from transient or variable sources. Additionally, the performance will be demonstrated by applying the analysis to archival data.

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