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## All-Sky Search for Autocorrelated Neutrino Transients

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### Abstract content

Up to now, analyses of AMANDA data have been limited to searches for diffuse astrophysical sources, time-integrated searches for point sources, and searches for flares and bursts from pre-selected sources (AGN and GRB) over limited time-scales. On the other hand, multi-wavelength studies have shown that emissions can occur in exponential flares or bursts with strengths that can be much greater than the corresponding quiescent emission. While multi-messenger studies are much needed to determine the full complexity of the character of astrophysical source classes, and can sometimes be used to pinpoint when to search for flaring events, their present lack of coverage and low duty cycle make them inadequate to take fully advantage of IceCube's high duty cycle two-pi coverage. Furthermore, it is possible that neutrino flares occur without contemporaneous emission at other wavelengths, defining a new class of astrophysical sources. Therefore, we are performing an all-sky search for autocorrelated neutrino transients with AMANDA data from years 2000 to 2004, surveying the largest range of timescales for which an improved signal to noise ratio can be obtained. In this talk we will present a new unbinned autocorrelation method that scores directions, vis-à-vis the point-spread-function, with the likelihood of measuring an energy related variable (the number of hit channels) given the time difference between the neutrinos in the multiplet. The results of this analysis will be presented.

### If this papers is presented for a collaboration, please specify the collaboration

IceCube Collaboration

### Summary

### Reference

Proceedings of the 30th International Cosmic Ray Conference; Rogelio Caballero, Juan Carlos D'Olivo, Gustavo Medina-Tanco, Lukas Nellen, Federico A. Sánchez, José F. Valdés-Galicia (eds.); Universidad Nacional Autónoma de México, Mexico City, Mexico, 2008; Vol. 5 (HE part 2), pages 1393-1396

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