

Neutrino follow-up observations with the High Energy Stereoscopic System (HESS)

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Realtime alerts have become a cornerstone of multi-messenger astronomy since the past decade. Electromagnetic (EM) observatories operating in various wavelength-bands regularly follow up alerts issued by other EM facilities and more commonly by the neutrino and gravitational wave (GW) observatories across the world. While the localization of GW wave alerts in the sky is rather large at present, multi-TeV neutrinos have a directional uncertainty of ~ 1 deg., allowing for swift identification of potential counterparts. IceCube sends out these alerts publicly as well as privately to some observatories under MoU. The High Energy Stereoscopic System (HESS), is an Imaging Air Cherenkov Telescope (IACT) sensitive to TeV gamma-rays, located in the Namibian desert. HESS receives alerts from IceCube under MoU for an accumulation of events in a particular sky direction above a certain threshold, as well as the individual track-like events also available to the public. Follow-up observations are performed based on the purity of the signal, visibility to HESS, presence of known GeV sources in the error region etc.

In this poster/talk on behalf of HESS, I will shed light on the real-time alert paradigm, in general and specific to HESS, and also share the results of a few important follow-ups performed by HESS in the past.

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