

Follow-up gamma-ray observations of neutrino events with the H.E.S.S. imaging atmospheric Cherenkov telescope

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While high-energy neutrinos have been detected by the IceCube neutrino observatory for more than a decade, their individual sources still remain unidentified. Some of the most prominent candidates for emission at such high energies are blazars, a type of Active Galactic Nuclei (AGNs) with powerful relativistic jets, and Gamma-ray Bursts (GRBs), both thought to be the birthing place of high-energy cosmic rays. As cosmic rays are accelerated, they interact with nearby gas or photons to produce high-energy neutrinos and gamma-rays. With both neutral tracers pointing back to their sources, it is possible to search for spatial and temporal coincidence of very-high-energy (VHE, >100 GeV) gamma-rays with imaging atmospheric Cherenkov telescopes and high-energy neutrino alerts shared by IceCube. We summarize the follow-up observation strategy performed by H.E.S.S., starting with the most promising correlation with blazar TXS 0506+056 observed in September 2017 and including observations performed until March 2021.

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