

Extending the IceCube Search for Astrophysical Neutrino Sources in the Northern Sky to 13 years of Data

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The IceCube Neutrino Observatory is a one-cubic-kilometer-sized neutrino telescope deployed in the deep Antarctic ice at the South Pole. One of IceCube's major goals is finding the origin of astrophysical high-energy neutrinos. In 2022, IceCube published the results of a search for astrophysical point-like sources of neutrinos in the Northern Sky using 9 years of events produced by charged-current muon-neutrino interactions. These events provide good pointing precision, making the sample optimal for point-source searches. This analysis identified the active galaxy NGC1068 as a candidate source of astrophysical neutrinos with a global significance of 4.2σ . NGC1068 is classified as a Seyfert galaxy, and it is especially bright in the X-ray emission band. This result contributed to raise the interest in this particular class of active galaxies as a potential population of neutrino emitters. In this poster, we present the extension of the previous analysis using 13 years of data and, given the particular nature of NGC1068, we also perform a search for neutrino emission focusing on X-ray bright Seyfert Galaxies.

Poster prize

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