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Prospects for Identifying Luminous Seyfert Galaxies in Current and Future Neutrino Telescopes

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Acceleration of cosmic rays in hot and magnetized coronae of active galactic nuclei will lead to the production of high-energy neutrinos and soft gamma rays. These optically thick environments, hidden in gamma-rays, are the promising environment for producing the flux of high-energy cosmic neutrinos at medium energies. In this talk, we present the high-energy cosmic neutrinos flux from the bright nearby Seyfert galaxies based on X-ray observations and evaluate their detectability in current and future neutrino telescopes. We show that NGC 1068, the most significant source in IceCube 10 year time-integrated search, is the most promising source among the bright nearby Seyfert galaxies and present scenarios identifiable in the current generation of neutrino telescopes. Moreover, we show that stacking searches will have sufficient sensitivity to identify the hidden cores of supermassive black holes as the dominant sources of high-energy neutrino emission at medium energy ranges.

Collaboration name

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