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Abstract for an Invited Paper
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Search for new phenomena and cosmic accelerators with high energy neutrinos

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We have arrived at a special moment in time, where we can now observe the Universe in fundamentally new ways using high energy neutrinos, gamma rays, cosmic-rays, and gravitational waves. By viewing the Universe through these cosmic messengers and in their combination, an era of discoveries awaits us. This talk will be focused on the tremendous progress that has been achieved on the neutrino frontier in our cosmic exploration. Latest results from the IceCube Neutrino Observatory including the detection of an event at the Glashow resonance energy, the observation of a diffuse astrophysical neutrino flux, hints for clustering in the neutrino skymap and the multi-messenger observation of a flaring blazar coincident with energetic neutrino emissions will be reviewed. Prospects for discovering more extra-terrestrial high-energy neutrino sources, including those in our solar system, and ways to search for hints of physics beyond the standard model at energy scales beyond the reach of accelerators will be discussed. Plans for upgrades to the IceCube detector and how the IceCube's multi-messenger science program can be critically enhanced using a novel camera-based calibration system will be reviewed. The talk will conclude with a vision for the next-generation of neutrino observatories.