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The Pacific Ocean Neutrino Experiment

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The discovery of a bright background of astrophysical neutrinos of unknown origin by IceCube has provided a first, tantalizing glimpse of the extreme universe outside of the electromagnetic spectrum. Ten years after its discovery, however, the production mechanism and these neutrinos remain almost entirely unknown, necessitating a new generation of instruments. This talk will describe the current status and prospects of the planned Pacific Ocean Neutrino Experiment (P-ONE), which will provide a complementary approach to that taken by IceCube and IceCube-Gen2, focusing on precision measurements and the southern celestial hemisphere. Construction of P-ONE is planned to begin in 2024, leveraging an existing deep-sea research facility off the coast of British Columbia provided by Ocean Networks Canada. When completed, the instrument will provide factor-of-4-to-5 improvements in resolution compared to IceCube, expected to increase the number of known neutrino sources by an order of magnitude, and provide the best performance in complementary areas of the sky to other neutrino telescopes such as IceCube and KM3NeT.

Submitted on behalf of a Collaboration?

Yes

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