

SPCS 2026: 70th Anniversary of the Discovery of Parity Nonconservation and Prospects in Frontier Physics & SPCS 2026 Summer School

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Status and prospect of Trident

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The Tropical Deep-sea Neutrino Telescope (TRIDENT) project aims to pioneer the development of a next-generation deep-sea neutrino observatory. Designed to detect high-energy astrophysical neutrinos, TRIDENT seeks to address the century-old puzzle of the origin of cosmic rays. Furthermore, it will enable precise measurements of the flavor ratio of astrophysical neutrinos, providing valuable insights into neutrino production mechanisms within cosmic sources and serving as a powerful probe for physics beyond the Standard Model.

TRIDENT will feature a large-scale deep-sea array deployed at a depth of 3,500 meters in the South China Sea. The full configuration will comprise approximately 1,000 strings instrumented with roughly 20,000 novel hybrid digital optical modules (hDOMs), monitoring a seawater volume of about 10 cubic kilometers. TRIDENT Phase-I, consisting of 10 detector strings, is currently underway and is scheduled for deployment in 2027. This talk will present the recent technical updates, project status, and future prospects of the TRIDENT experiment.

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