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Physics goal-driven design of the TRIDENT detector

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The TRopIcal DEep-sea Neutrino Telescope (TRIDENT) aims to deploy optical detection modules within ˜8 km3 of seawater, approximately 3.5 km deep in the South China Sea. Following the discovery of diffuse astrophysical neutrinos by the IceCube Neutrino Observatory, next-generation telescopes with increased size and improved performance expect to be on the verge of multiple discoveries. TRIDENT' s primary goals are to rapidly resolve multiple astrophysical neutrino sources and boost sensitivity to all neutrino flavours. Important inputs to achieving these goals are TRIDENT' s size, layout, location near the equator and use of advanced photon detection technologies. In this talk, the telescope' s design and expected performance will be discussed, along with an introduction to the simulation framework used to evaluate its optimal construction for its early phases and final form.

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