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# Exploring a PMT+SiPM hybrid optical module for next generation neutrino telescopes

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Cosmic neutrinos are unique probes of the high energy universe. IceCube has discovered a diffuse astrophysical neutrino flux since 2013, but their origin remains elusive. The potential sources could include, for example, active galactic nuclei, gamma-ray bursts and star burst galaxies. To resolve those scenarios, higher statistics and better angular resolution of astrophysical neutrinos are needed. An optical module with larger photon collection area and more precise timing resolution in a next generation neutrino telescope could help. Silicon photon multipliers (SiPMs), with high quantum efficiency and fast responding time, combining with traditional PMTs, could boost photon detection efficiency and pointing capability. We will present a study on exploring the benefits of combining multiple PMTs and SiPMs in an optical module.

## Keywords

neutrino telescope; optical module

## Collaboration

## other Collaboration

## Subcategory

Experimental Methods & Instrumentation

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