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# Neutrino Target-of-Opportunity Observations with POEMMA

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Cosmic-ray accelerators capable of reaching ultra-high energies are expected to also produce very-high energy neutrinos via hadronic interactions within the source. Many of the candidate astrophysical source classes are either transient in nature or exhibit flaring activity. Leveraging the Earth as a neutrino converter, the Probe of Extreme Multi-Messenger Astrophysics (POEMMA) will be able to detect cosmic tau neutrinos at energies  $\sim 10$  PeV and above. As a space-based mission, POEMMA will have orbital characteristics and slewing capability that will ensure full-sky coverage and enable rapid follow up, making it uniquely suited for searching for neutrinos from astrophysical transient events. We present the latest results of a study exploring the prospects of detecting tau neutrino events with POEMMA from a variety of astrophysical transient source classes and potential backgrounds during Target-of-Opportunity observations.

## Collaboration name

POEMMA Collaboration

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