

Abstract Submitted  
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**Overview of the POEMMA observatory**<sup>1</sup> ANGELA V OLINTO, University of Chicago, JOHN K KRIZMANIC, NASA Goddard Space Flight Center and University of Maryland, POEMMA COLLABORATION<sup>2</sup> — The Probe Of Extreme Multi-Messenger Astrophysics (POEMMA) is designed to accurately observe ultra-high-energy cosmic rays (UHECRs) and cosmic neutrinos from space with sensitivity over the full sky. In this talk we will discuss how POEMMA studies UHECRs at energies above 20 EeV and cosmic neutrinos above 20 PeV through signatures of extensive air showers (EASs). The POEMMA observatory consists of two identical telescopes flying in loose formation at an altitude of 525 km. Each POEMMA telescope has a wide field-of-view (45 °) Schmidt optical design with over 6 m<sup>2</sup> of collecting area. To study UHECRs and UHE neutrinos, POEMMA observes fluorescence with a fast (1  $\mu$ s) near-ultraviolet camera. To study cosmic neutrinos, POEMMA detects Cherenkov signals from upward-moving EASs induced by Earth-interacting tau neutrinos with an ultrafast (10 ns) optical camera. The POEMMA spacecraft are designed to quickly re-orientate to follow transient neutrino sources and obtain unparalleled neutrino flux sensitivity. In a 5-year mission, POEMMA will provide measurements that open new multi-messenger windows onto the most energetic events in the universe, enabling the study of new astrophysics and particle physics at these otherwise inaccessible energies.

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