

**Space Observatories of the Highest Energy Particles: POEMMA & EUSO-SPB**

**Angela V. Olinto**  
The University of Chicago

**August 28, 2019**  
4:00 p.m.

What are the mysterious sources of the most energetic particles ever observed? What are the sources of energetic cosmic neutrinos? How do these particles interact at extreme energies?

Building on the progress achieved by the Pierre Auger Observatory, an international collaboration is working on space and sub-orbital missions to answer these questions.

The Extreme Universe Space Observatory (EUSO) on a super pressure balloon (SPB) was built to detect ultra-high energy cosmic-rays fluorescence from above. EUSO-SPB1 flew in 2017. EUSO-SPB2 is being built to observe fluorescence and Cherenkov from UHECRs and neutrinos. These missions lead to POEMMA, the Probe Of Extreme Multi-Messenger Astrophysics, a space mission designed to discover the sources of UHECRs and to observe neutrinos above 20 PeV from energetic transient events. POEMMA will 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.

**Wilson Hall, One West**