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Overview of the EUSO-SPB2 mission[1] JOHANNES ESER, ANGELA OLINTO, University of Chicago, LAWRENCE WIENCKE, Colorado School of Mines, JEM-EUSO COLLABORATION — The primary challenge in measuring the highest energy cosmic rays and astrophysical neutrinos above PeV energies is the extremely low flux. One way to address this issue is by moving the detector to space and observing the Fluorescence light (for cosmic rays) and the Cherenkov light (for earth skimming tau neutrinos) produced in the atmosphere. The Probe of Extreme Multi-Messenger Astrophysics (POEMMA) follows this idea for which the Extreme Universe Space Observatory on a Super Pressure Balloon II (EUSO-SPB2) is a precursor.

EUSO-SPB2 is being built with two separate Schmidt telescopes: 1) The Fluorescence Telescope (FT) for the observation of ultra high energy cosmic rays and 2) The Cherenkov Telescope (CT) for ultra high energy neutrinos. From a float altitude of 33km, the FT will look downwards onto the atmosphere and record the signature of cosmic ray air showers with energies $E > 10^{18}$eV while the CT will look slightly below the limb to quantify the background for earth skimming tau neutrino detection and slightly above the limb to verify the detection method by recording direct Cherenkov light from cosmic rays.

This overview will provide a brief summary of the mission, specifically, the science goals, instruments and current status.

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