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The EUSO-SPB2 mission

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EUSO-SPB2 is a second generation Extreme Universe Space Observatory (EUSO) on a Super-Pressure Balloon (SPB). The mission broadens the scientific objectives of the EUSO program and constitutes the first step towards the study of neutrino signals from the high atmosphere and space.
The EUSO-SPB2 science payload will be equipped with three detectors designed for a long duration mission. One is a fluorescence telescope developed to detect Ultra High Energy Cosmic Rays via the UV fluorescence emission of the particle showers generated in the atmosphere. The other two telescopes will measure Cherenkov light emission from showers of lower energy cosmic rays to study and measure the background contribution for detecting cosmogenic neutrinos.
These specific techniques and detection methods are performed in light of the realization of POEMMA (Probe of Extreme Multi Messenger Astronomy), a space mission, currently under NASA funded conceptual design studies. The EUSO-SPB2 mission has been approved by NASA and foreseen to be launched in 2021.
In this paper we will give a description of the payload, including details on the detection techniques and the telescopes design.

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