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Status of the EUSO-SPB2 Fluorescence Detector GEORGE FILIPPATOS, Colorado School of Mines, JEM-EUSO COLLABORATION — The Extreme Universe Space Observatory Super Pressure Balloon 2 (EUSO-SPB2) is under development, and will prototype instrumentation for future satellite-based missions, including POEMMA. EUSO-SPB2 will consist of two telescopes, a Cherenkov detector (CD) developed to identify and estimate the background sources for future (below-the-limb) astrophysical neutrino observations, and a fluorescence detector (FD) developed for detection of Ultra High Energy Cosmic Rays (UHECR). In preparation for the expected launch in 2023, extensive simulations have been performed to understand the capabilities of the FD. These simulations have been informed by preliminary laboratory measurements. In addition, online software including a level 1 trigger as well as a deep learning based prioritization algorithm have been developed. These optimized routines along with an expansive set of simulated extensive air showers were used to estimate the energy threshold, at $10^{18.2}$eV, and results in maximum detection rate at $10^{18.5}$eV, taking into account the shape of the UHECR spectrum. Additionally, by use of the JEM-EUSO OffLine framework, the reconstruction capabilities of the instrument have been quantified.

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