

EUSO: EXTREME UNIVERSE SPACE OBSERVATORY – THE TELESCOPE.

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To extend our knowledge on the origin of the highest energy cosmic rays and our understanding of particle interactions for $E > 10^{20}$ eV, we need the use of a detector with an effective area many times that of the today operative or planned experiments. The Extreme Universe Space Observatory - EUSO meets this requirement and is the first experiment using the observation from a space-platform of the Earth atmosphere which behaves like an active detector for these extreme energy primary events. The air fluorescence of the Extensive Air Showers produced by primary particles penetrating the Earth atmosphere is imaged by the EUSO telescope as the UV light progresses down through the atmosphere EUSO will observe this UV fluorescence signal looking downward from the ISS (about 400 km altitude) the dark Earth atmosphere under a 60 degrees full field of view; the fluorescence light will be imaged by a large Fresnel lens optics into a finely segmented focal plane detector. The segmentation and the time resolution adopted will consent to reconstruct the shower arrival direction and energy with high precision.

Note: EUSO has been approved for the Phase A study by the European Space Agency ESA. The Phase A study will start in April 2001 and the EUSO Collaboration will be consequently formalized.