

Simulation study of a space based UHECR detector

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The next generation of experiments devoted to the study of the cosmic rays spectrum above 10^{20} eV will be most likely done by means of space based detectors. In order to detect the fluorescence and Čerenkov signal generated by an EAS in atmosphere, severe requirements on the photon collection efficiency and on the triggering capability need to be met. In this paper we report about preliminary studies of the triggering efficiency, reconstruction efficiency, angular and energy resolution of a space based detector as a function of the main detector parameter. The physics scope of this kind of experiment is discussed as a function of the instrument performance. All results are obtained by means of a detailed simulation of the shower development, atmospheric response, detector geometry and electronics and trigger behavior in realistic conditions based on the ESAF package, the Euso Simulation and Analysis Framework^[1].

References

- [1] A.Thea et al., “The Euso Simulation and Analysis Framework”, this conference.