



ID de Contribution: 83

Type: POSTER

Search and study of extensive air shower events with the TUS space experiment.

mardi 9 octobre 2018 10:30 (3 minutes)

The TUS experiment is designed to investigate the ultra high energy cosmic rays (UHECR) at energy ~ 100 EeV from the space orbit by the UV radiation measurement of extensive air showers (EAS). It is the first orbital telescope aimed for such measurements and is taking data since April 28, 2016. TUS detector consists of a modular Fresnel mirror and a photo receiver matrix with a field of view $\pm 4.5^\circ$ and the number of PMT pixels 16×16 . The DAQ electronics has a main mode of operation with $0.8 \mu\text{s}$ temporal resolution and a $200 \mu\text{s}$ duration of measured waveforms. Spatial resolution in the atmosphere is 5 km with a total field of view of about $80 \times 80 \text{ km}^2$. The TUS apparatus structure, methods of UHECR on-line selection and off-line data analysis are described. A few UHECR EAS candidates were found. Preliminary results of their investigation and comparison with the corresponding Monte-Carlo events are presented.

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Classification de Session: POSTER SESSION