

DEVELOPMENT OF A SMALL-SCALE PROTOTYPE OF FRESNEL OPTICS FOR COSMIC RAY OBSERVATION

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For the optical detection of high energy cosmic rays, wide field of view telescope is effective. In such kind of observation, refracting optics has an advantage because of lax precision for assembly even for the less angler resolution. Moreover Fresnel lens optics will provide large aperture with low mass and quite easy to make the wide-field system. This kind of optical system has applied to the basic design of EUSO (Extreme Universe Space Observatory). We have developed a small-scale prototype of Fresnel optics to establish a large aperture, wide field of view optical system. This telescope consists of two plastic Fresnel lenses, which have grooves in both sides with 40cm diameter and multi-anode photo-multiplier at the focal plane with our original readout system. The structure and the performance of the telescope will describe.