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A system of medium resolution for monitoring the night sky background in the visible and near UV range

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Abstract content

We address the problem of determining the spectrum of night sky background in a spectral resolution which allows understanding quick changes in the intensity and shape of these spectra. One can use this information in EAS observatories for carrying out possible corrective actions during the testing, designing or normal operation phases. We present a design of a low cost medium resolution telescope for the night sky background radiation, based on an Oriel 77250 1/8 m monochromator. Using two types of holographic gratings with 1200 and 2400 grooves per mm we are able to measure nightglow emissions in the visible and UV spectrum region as well. The monochromator works in conjunction with a UV sensitive photomultiplier tube and can achieve better than 0.25 nm resolution. Data acquisition and control of the facility are based mostly in custom-made hardware. The artificial light from mercury lamps in the near area of N.T.U.A. campus can be clearly observed and used for calibration purposes and further improvement of this setup. We present the contributions in the night sky background due to atmospheric, zodiacal, planetary, moon and stellar radiations. We suggest possible adaptation of this facility for use in ground based and spaceborn EAS detectors.

If this papers is presented for a collaboration, please specify the collaboration

Summary

Reference

Proceedings of the 30th International Cosmic Ray Conference; Rogelio Caballero, Juan Carlos D'Olive, Gustavo Medina-Tanco, Lukas Nellen, Federico A. Sánchez, José F. Valdés-Galicia (eds.); Universidad Nacional Autónoma de México, Mexico City, Mexico, 2008; Vol. 5 (HE part 2), pages 1125-1128

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