

MULTIWAVELENGTH RAMAN LIDAR TO ASSESS ATMOSPHERIC MODEL SIMULATIONS FOR OPTICAL SHOWER DETECTION SYSTEMS

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Abstract

The Lidar Division, CEILAP (CITEDEF-CONICET), developed a multi-wavelength scanning Raman lidar to provide better transmission calculations of the Cherenkov and the nitrogen UV light emission in the frame of the Cherenkov Telescope Array (CTA) and Pierre Auger Projects respectively. This lidar measures the atmospheric extinction in the visible and the UV range by using Raman wavelengths. An additional channel is added to retrieve the atmospheric water vapor number density profile. The extended range and fast measurement to fit the Auger and CTA Observatories requirements is obtained by increasing its collection area using six 40 cm Newtonian telescopes. This lidar combined with other instruments can provide a better knowledge of the atmospheric conditions at the telescope site to minimize systematic uncertainties in the derived flux and provide a better energy calibration of the observed Cherenkov experiment.