



Contribution ID: 719

Type: **Poster**

Optical properties of the fluorescence telescope in the Telescope Array experiment using the Opt-copter

This report focuses on one of the important calibration aspects: the pointing direction of the Telescope Array Fluorescence Detector (TA-FD), which is measured with a drone-mounted LED light source Opt-copter. An understanding of the optical properties of the TA-FD is essential for accurate analysis of ultra-high energy cosmic rays (UHECR) using atmospheric fluorescence methods. This project, which started in 2019, is in its final phase and has completed the measurement of the pointing directions of all TA-FDs (38 in total). The impact of this pointing accuracy on the TA air shower analysis was estimated, including the bias and systematic uncertainty it introduces.

Collaboration(s)

Telescope Array Collaboration

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Session Classification: PO-1

Track Classification: Cosmic-Ray Indirect