

The IACT optical system of the TAIGA observatory.

TAIGA (Tunka Advanced Instrument for cosmic ray physics and Gamma Astronomy) is designed for the study of gamma rays and charged cosmic rays in the energy range 1013 eV - 1018 eV. The JINR responsibility is design and fabrication of mechanics for the Imaging Atmospheric Cherenkov Telescopes (IACTs). The field of view of the IACT is $\sim 10 \times 10$ degrees and it has a Davis-Cotton optical system with 34 mirrors, 60 cm diameter each, a focal length of 4.75 m and a camera of 560 of the XP1911 PMTs. The first IACT is operating since 2016 in the Tunka site. Production of the second IACT is in progress. The report will present the procedure and the results of the PMT calibration, the mirror fabrication and its optical parameter measurements. Additionally, a method of mirror alignment is presented. It replaces the present visual assessment of the image by a pattern recognition program applied to a screen shot of the image of the calibration source. The program precisely calculates the appropriate turns of the mirror adjusting screws to get a correct image.

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