

Recent results from the GRAPES-3 experiment

The GRAPES-3 experiment, located in Ooty, India, uses an array of 400 plastic scintillator detectors deployed over 25,000 m², and a 560 m² tracking muon telescope to record extensive air showers in the TeV–PeV energy range and angular muon flux above a GeV, respectively. The energy spectrum and nuclear mass composition of primary cosmic rays, solar and heliospheric phenomena, and atmospheric acceleration are among the broad subjects that may be studied using these two equipments and the observations that go along with them. The GRAPES-3 instrumentation and important scientific findings from the past few years will be discussed in this talk. These include (i) the measurement of 1.3 GV thundercloud potential in a massive thundercloud, (ii) the use of a geomagnetic storm to probe a crack in the geomagnetic shield, (iii) the hardening of the proton energy spectrum at 166 TeV, and (iv) small-scale cosmic ray anisotropy at TeV energies, observed with the GRAPES-3 experiment.

Ref: <https://www.tifr.res.in/grapes3/publications.html>

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