



Project: Major Atmospheric Cherenkov Experiment (MACE)

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MACE gamma-ray telescope

Abstract:

- MACE (Major Atmospheric Cherenkov Experiment) is a 21-m diameter imaging atmospheric Cherenkov telescope which has been recently installed by the HiGRO (Himalayan Gamma-Ray Observatory) collaboration comprising BARC, TIFR and IIA at Hanle in Ladakh region of North India. The telescope is designed to study very high energy cosmic gamma-ray sources in the unexplored energy region of ~ 20 GeV and beyond with high sensitivity. The light collector of MACE comprises 356 mirror panels of size $\sim 1\text{m} \times 1\text{m}$ where each panel consists of 4 indigenously developed diamond turned aluminium mirror facets. The imaging camera of the telescope consists of 1088 photomultiplier tubes with a resolution of $\sim 0.125^\circ$ and a field of view of $\sim 4.0^\circ \times 4.0^\circ$. Expected to operate at a trigger threshold energy ~ 20 GeV, the telescope will play an important role in understanding the nature of cosmic accelerators and the radiation emission processes in extreme environments. Scientific objectives of the MACE, its key design features and current status of the telescope will be presented in the talk.

About the Speaker:

- Dr. K.K. Yadav joined the very high energy gamma-ray astronomy programme of BARC after graduating from BARC Training School in 1997 and has participated in the development of India's first imaging gamma ray telescope TACTIC which is operational at Mount Abu. He obtained his Ph.D degree from Mumbai University in 2011. Currently he is involved with the various developmental aspects of the 21m-diameter MACE (Major Atmospheric Cherenkov Experiment) telescope which has been recently installed at a high altitude (4200 m) astronomical site Hanle in North India.

