

Prospects for Fundamental Physics and Cosmology with the Cherenkov Telescope Array

Thursday, 15 August 2013 10:30 (24 minutes)

The Cherenkov Telescope Array (CTA) will be a new observatory for the study of very high energy (VHE) gamma-ray sources. It is designed to achieve an order of magnitude improvement in sensitivity in the ~30 GeV to ~100 TeV energy band compared to currently operating instruments (VERITAS, MAGIC, HESS). The design and capabilities of CTA will be described. The presentation focuses on how CTA will be able to address key topics in fundamental physics and cosmology. Principal among these is the search for cosmic signals of dark matter annihilation, and it will be described how CTA is sensitive to higher dark matter particle masses which are complementary to the expected results from Fermi-LAT and difficult to probe with direct detection and LHC experiments. Studies of the extragalactic background light and intergalactic magnetic fields with CTA will be important tests of cosmological models. Searches for Lorentz invariance violation and photon mixing with axion-like particles will probe physics beyond the Standard Model.

APS member ID

WI324529

Primary author: WILLIAMS, David (UC Santa Cruz)

Presenter: WILLIAMS, David (UC Santa Cruz)

Session Classification: Cosmic Frontier

Track Classification: Cosmic Frontier