CU Physics Department Particle Seminar

Wednesday, April 25, 2012

705 Pupin Hall 1:00 PM

“Cherenkov Telescope Array - next-generation ground-based gamma-ray observatory”

The Cherenkov Telescope Array (CTA) is proposed as a next-generation ground-based gamma-ray observatory for very high energy astronomy (>10 GeV) and is expected to start operation in the current decade. CTA will consist of a hybrid array of several types of Cherenkov telescopes, planning to (a) provide coverage from a few tens of GeV to beyond 100 TeV, (b) increase sensitivity by an order of magnitude at around 1 TeV (c) significantly improve angular resolution and enable morphological studies of sources, (d) increase field of view which together with large photon detection area facilitates unparalleled research of transient phenomena at high energies, and (e) enhance the all sky survey capability. In this talk I plan to briefly review the status of research in two areas of astrophysics, indirect detection of dark matter and intergalactic magnetic fields, which is currently being conducted by VERITAS, H.E.S.S., MAGIC, and Fermi observatories. I will then illustrate the physics potential of CTA to further advance these studies and overview CTA technology and the status of the project focusing on the development of novel Schwarzschild□Couder Telescope design which is being developed by the CTA-US members of the CTA consortium.

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