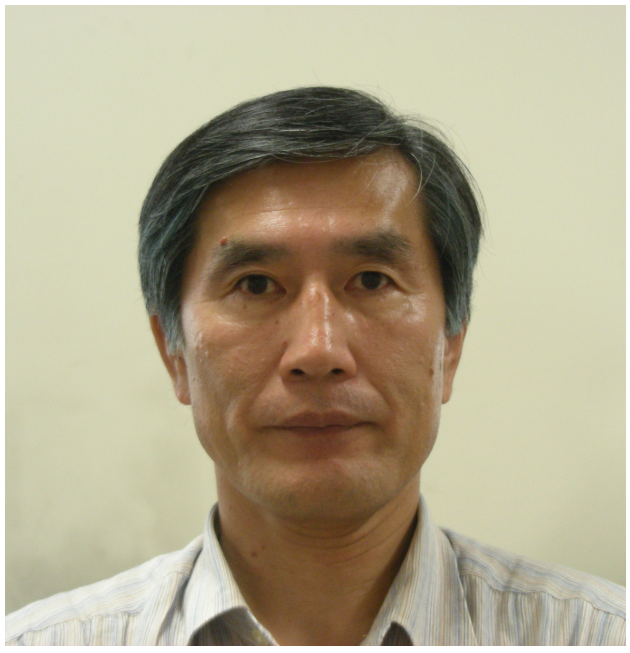
KMI Colloquium

Results from the Telescope Array experiment
- Exploring the origin of highest-energy cosmic rays -



Hiroyuki SAGAWA
(ICRR, University of Tokyo)

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Abstract:

The nature and origin of highest-energy cosmic rays (cosmic rays with energies of around 1020 eV) are outstanding mysteries in physics: How did they gain such extreme energies? Where did they come from? What particles are they? The Telescope Array (TA) experiment challenges these questions by measuring the energy, composition, and arrival direction anisotropy of ultra-high-energy cosmic rays with energies exceeding 1018 eV. TA is located in the desert in Utah, USA, and the largest extensive-air-shower cosmic-ray detector in the northern hemisphere. It consists of a surface array of 507 scintillation counters covering approximately 700 km2 and 38 fluorescence telescopes located at three sites looking inward over the surface array. Its hybrid operation started in March, 2008. Here I present the results from TA using data collected over a 5-year period and the prospect.