



Contribution ID: 1312

Type: Oral contribution

Combination of shower-front sampling and imaging in the Tunka Advanced International Gamma-ray and Cosmic ray Astrophysics (TAIGA) project

Monday, 3 August 2015 11:00 (15 minutes)

For observation of extensive air showers from gamma rays and cosmic rays, shower front sampling arrays (non-imaging technique or timing-arrays) provide good core position, energy and angular resolution while covering a large area and possessing a wide field of view, yielding good sensitivity at the highest energies. However, the gamma-hadron separation power of this method is only poor compared to other techniques.

In matters of gamma hadron separation and reconstruction, imaging air Cherenkov telescopes (IACT) are the instrument of choice, but a stereoscopic view of a shower is needed for accurate reconstruction. This makes it difficult to achieve sufficiently large effective areas needed for sensitive observations at and above 100 TeV. A combination of these experimental approaches, using the strengths of both techniques while compensating their weaknesses, could optimize the sensitivity to the highest energies.

The TAIGA project plans to combine the non-imaging HiSCORE array with small HEGRA-like imaging telescopes. Here, we present the first hybrid simulation combining imaging and non-imaging detectors. These simulations are used to explore and optimize the hybrid reconstruction technique and its sensitivity.

Collaboration

– not specified –

Registration number following "ICRC2015-I/"

925

Primary author: KUNNAS, Maike (University of Hamburg)

Presenter: KUNNAS, Maike (University of Hamburg)

Session Classification: Parallel GA11 Instruments / Prospects

Track Classification: GA-IN