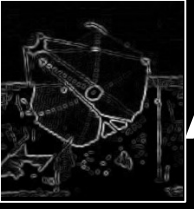
Discussion Sessions – new IACT Array for multi-TeV astronomy

1. Plans/directions of various active groups
   - G. Rowell (for Adelaide)
   - S. LeBohec
   - T. Yoshikoshi
   ....others

2. IACT-Array More Technical issues
   (Friday)
   - telescope spacing
   - optimal cell spacing



Adelaide Plans

- Goal: IACT Array for E>1 TeV studies located in Australia
  Emphasis on multi-TeV astrophysics
  Multi-cell philosophy – sensitiivity AND collection area in the 1–100 TeV regime.

- Why Australia?
  Southern Hemisphere (access many galactic objects)
  HESS shows the way....
  Low altitude sites are perfect for E>1 TeV

- Complimentary to others' future plans
  HESS-II, MAGIC, VERITAS....
  (optimised for lower energies)

- Timeframe: aim to commence first cell in a few years.....

1. Multi-TeV IACT Array

-Essential (for astrophysics): collection area >= 10 km^2 at 10 to 100 TeV plus >= 1 km^2 at few TeV (balance betweeen deep studies at few TeV & discovery at > 10 TeV). Large instanteneuous FoV essential for transients

Field of view >= ~8 deg for extended sources & background estimation in complex fields. Angular resolution should be similar to HEGRA & HESS

--> pixel sizes 0.25 to 0.5 deg are sufficient

--> camera pixels ~500 to 1000

Array Layout

- Stephane: GRATIS high density regular – excellent ang res but lower Aeff

TALE : low density array (ultra-wide FoV higher price)

- Gavin: Cell-based approach – different baselines for varous energies

(intra-cell 300m for few TeV, intercell 1km for 100 TeV

(Gus – graded array design)

- Taka – optimum baseline increases with energy...10 TeV spacing >500m

Prototype telescope development: Gas PMTs QE ~10% now

- telescopes on rails...

Site – Australian sites feasible – investigate SKA piggyback

White paper (US) on future of ground-based TeV astro worth targeting