



Contribution ID: 395

Type: **Poster contribution**

## Simulations of a Distributed Intelligent Array Trigger for the Cherenkov Telescope Array

*Saturday, 1 August 2015 15:30 (1 hour)*

It is anticipated that the forthcoming Cherenkov Telescope Array will include a number of medium-sized telescopes that are constructed using a dual-mirror Schwarzschild-Couder configuration. These telescopes will sample a wide (8 degree) field of view using a densely pixelated camera comprising over  $10^4$  individual readout channels. A readout frequency congruent with the expected single-telescope trigger rates would result in substantial data rates. To ameliorate these data rates, a novel, hardware-level Distributed Intelligent Array Trigger (DIAT) is envisioned. A copy of the DIAT operates autonomously at each telescope and uses reduced metadata from a limited subset of nearby telescopes to veto events prior to camera readout. We present the results of Monte-Carlo simulations that evaluate the efficacy of a “Parallax width” discriminator that can be used by the DIAT to efficiently distinguish between genuine gamma-ray initiated events and unwanted background events that are initiated by hadronic cosmic rays.

### Collaboration

CTA

### Registration number following ”ICRC2015-I/”

750

**Primary author:** DICKINSON, Hugh (Iowa State University)**Co-authors:** WEINSTEIN, Amanda (Iowa State University); Prof. KRENNRICH, Frank (Iowa State University)**Presenter:** WEINSTEIN, Amanda (Iowa State University)**Session Classification:** Poster 2 GA**Track Classification:** GA-IN