

# Towards an Australia IACT Array in a Network of Cherenkov Telescopes

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The nature of the most extreme astronomical phenomena is better understood through observing their GeV and TeV gamma-ray flux, in particular by quickly following up on transient events and continuously monitoring source flux variation. An Imaging Air Cherenkov Telescope (IACT) site in Australia, as part of a worldwide network of IACTs, would be a crucial part in achieving 24-hour all-sky coverage at these energies. Small arrays of telescopes were thus simulated to study the performance of an Australia-sited array with varying altitude, number of telescopes, layout, and telescope design based on the Small-Sized Telescope (SST) and Medium-Sized Telescope (MST) of the Cherenkov Telescope Array. This talk will include an overview of this telescope network idea, the results from the performance study, and the continuing work on trigger optimisations to improve energy threshold.

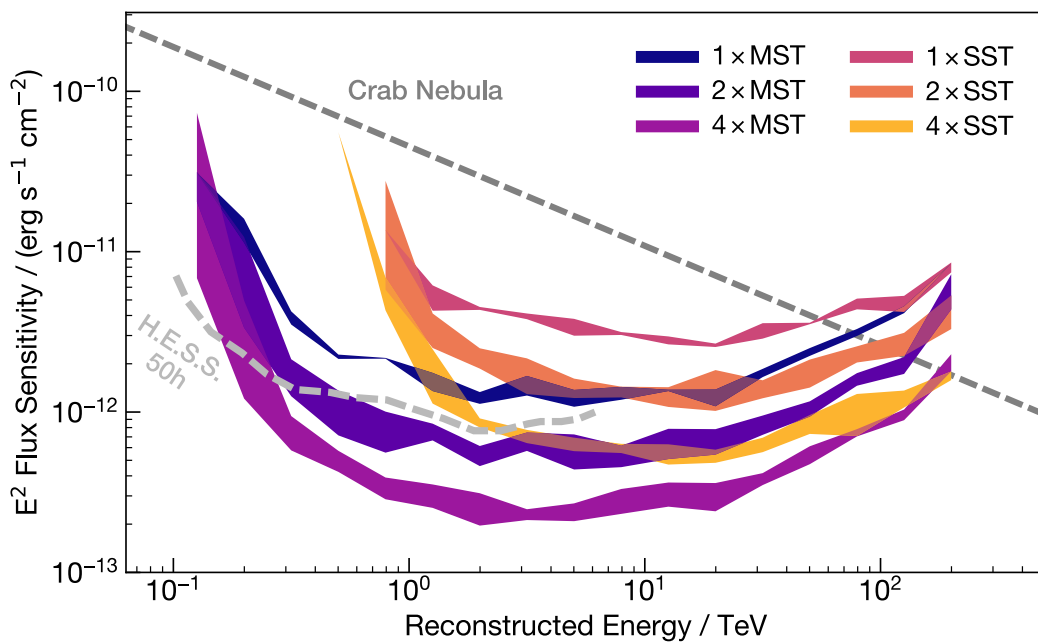


Figure 1: 50-hour differential point-source flux sensitivity for a  $5\sigma$  detection as a function of reconstructed gamma-ray energy. Bands represent the range of sensitivities across the studied altitudes (0 m and 1000 m) and baseline distances (80 m to 277 m). Cuts on gamma score and  $\theta^2$  were applied for each energy bin to optimise sensitivity for each array setup. The H.E.S.S. 50-hour sensitivity curve is shown for comparison [1].

[1] M. Holler et al., *PoS, ICRC2015*