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MACHETE: A transit Imaging Atmospheric Cherenkov Telescope to survey half of the VHE gamma ray sky

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Current Cherenkov Telescopes for VHE gamma ray astrophysics are pointing instruments with a field of view up to a few tens of sq.deg. We propose to build an array of two non-steerable telescopes with a FOV of 5 x 60 sq.deg oriented along the meridian. Roughly half of the sky drifts through this FOV in a year. We have performed a MC simulation to estimate the performance of this instrument, which we dub MACHETE. The sensitivity that MACHETE would achieve after 5 years of operation for every source in this half of the sky is comparable to the sensitivity that a current IACT achieves for a specific source after a 50 h devoted observation. The analysis energy threshold would be ~ 150 GeV and the angular resolution ~ 0.1 deg. For astronomical objects that transit over MACHETE for a specific night, it would achieve an integral sensitivity of 8% of crab in a night. This makes MACHETE a powerful tool to trigger observations of variable sources at VHE or any other wavelengths.

Collaboration

– not specified –

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