

Abstract Submitted
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The Advanced Gamma-ray Imaging System (AGIS) JAMES BUCKLEY, Washington University, AGIS COLLABORATION — We describe a concept for a $\sim\text{km}^2$ ground-based gamma-ray experiment (AGIS) comprised of an array of ~ 100 imaging atmospheric Cherenkov telescopes achieving a sensitivity an order of magnitude better than the current generation of space or ground-based instruments in the energy range of 40 GeV to ~ 100 TeV. We present the scientific drivers for AGIS including the prospects for contributions to understanding extragalactic sources such as nearby galaxies, active galaxies, galaxy clusters and GRB; galactic sources such as X-ray binaries, supernova remnants, and pulsar wind nebulae; as well as probes of fundamental physics including indirectly detecting dark matter and probing TeV-scale physics. With the current generation of atmospheric Cherenkov telescope arrays, TeV astronomy has become well established, with the number TeV gamma-ray sources now nearing 100, including many unidentified and serendipitous sources. Improvements in the instantaneous field of view, angular resolution, effective area and energy resolution of AGIS are certain to provide great scientific returns in high energy astrophysics as well as opening up new discovery space. Here we present an overview of the ongoing design studies for AGIS including the optimization of array parameters as well as an overview of the technical drivers for the observatory.

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