

Abstract Submitted
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Simulating deep surveys of the Galactic Plane with the Advanced Gamma-ray Imaging System (AGIS) STEFAN FUNK, Stanford University, SETH DIGEL, SLAC, AGIS COLLABORATION — The pioneering survey of the Galactic plane by H.E.S.S., together with the northern complement now underway with VERITAS, has shown the inner Milky Way to be rich in TeV-emitting sources; new source classes have been found among the H.E.S.S. detections and unidentified sources remain. In order to explore optimizations of the design of an Advanced Gamma-ray Imaging System (AGIS)-like instrument for survey science, we constructed a model of the flux and size distributions of Galactic TeV sources, normalized to the H.E.S.S. sources but extrapolated to lower flux levels. We investigated potential outcomes from a survey with the order of magnitude improvement in sensitivity and attendant improvement in angular resolution planned for AGIS. Studies of individual sources and populations found with such a sensitivity survey will advance understanding of astrophysical particle acceleration, source populations, and even high-energy cosmic rays via detection of the low-level TeV diffuse emission in regions of high cosmic-ray density.

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