

Abstract Submitted  
for the APR08 Meeting of  
The American Physical Society

**The Advanced Gamma-ray Imaging System (AGIS): Telescope Optical System Designs** VLADIMIR VASSILIEV, UCLA, JIM BUCKLEY, Washington University, ABE FALCONE, Pennsylvania State University, STEVEN FEGAN, UCLA, JOHN FINLEY, Purdue University, VICTOR GAURINO, ANL, DAVID HANNA, McGill University, PHILIP KAARET, University of Iowa, ALEX KONOPELKO, Purdue University, HENRIC KRAWCZYNSKI, Washington University, ROGER ROMANI, Stanford University, TREVOR WEEKES, Harvard-Smithsonian CfA, AGIS COLLABORATION — AGIS is a conceptual design for a future ground-based gamma-ray observatory based on an array of  $\sim 100$  imaging atmospheric Cherenkov telescopes (IACTs) with a sensitivity to gamma-rays in the energy range 40 GeV-100 TeV. The anticipated improvement of AGIS sensitivity, angular resolution, and reliability of operation imposes demanding technological and cost requirements on the design of the IACTs. In this submission we focus on the optical system (OS) of the AGIS telescopes and consider options which include traditional Davies-Cotton and the other prime-focus telescope designs, as well as a novel two-mirror aplanatic OS originally proposed by Schwarzschild. Emerging new mirror production technologies based on replication processes such as cold and hot glass slumping, cured CFRP, and electroforming provide new opportunities for cost effective solutions for the design of the OS. We evaluate the capabilities of these mirror fabrication methods for the AGIS project.

Vladimir Vassiliev  
UCLA

Date submitted: 15 Jan 2008

Electronic form version 1.4