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**The Advanced Gamma-ray Imaging System (AGIS):
Telescope Optical System Designs** VLADIMIR VASSILIEV,
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AGIS is a conceptual design for a future ground-based gamma-ray obser-
vatory based on an array of ~ 100 imaging atmospheric Cherenkov tele-
scopes (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 op-
tions 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 technolo-
gies based on replication processes such as cold and hot glass slumping,
cured CFRP, and electroforming provide new opportunities for cost ef-
fective solutions for the design of the OS. We evaluate the capabilities
of these mirror fabrication methods for the AGIS project.

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