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AGIS – the Advanced Gamma-ray Imaging System

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The Advanced Gamma-ray Imaging System, AGIS, is envisioned to become the follow-up mission of the current generation of very high energy gamma-ray telescopes, namely, H.E.S.S., MAGIC and VERITAS. These instruments have provided a glimpse of the TeV gamma-ray sky, showing more than 70 sources while their detailed studies constrain a wealth of physics and astrophysics. The particle acceleration, emission and absorption processes in these sources permit the study of extreme physical conditions found in galactic and extragalactic TeV sources. AGIS will dramatically improve the sensitivity and angular resolution of TeV gamma-ray observations and therefore provide unique prospects for particle physics, astrophysics and cosmology. This talk will provide an overview of the science drivers, scientific capabilities and the novel technical approaches that are pursued to maximize the performance of the large array concept of AGIS.