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White Paper on the Status and Future of Ground-based Gamma-ray Astronomy - Overview V. VASSILIEV, ON BEHALF OF WP TEAM — In recent years, very high-energy (VHE) gamma-ray astronomy has attracted the attention of the wider scientific community due to a number of important astrophysical discoveries made by the newly constructed ground-based gamma-ray observatories H.E.S.S, VERITAS, MAGIC, and Milagro. Among the most important findings is the discovery of a new, enigmatic population of VHE gamma-ray sources in the Milky Way. To date, some 70 TeV sources have been detected and the high discovery rate is expected to be maintained in the forthcoming years, due to the ongoing operation and upgrades of ground-based gamma-ray observatories and the long anticipated launch of the space-based gamma-ray telescope, GLAST. The continuation of these achievements into the next decade will require a new generation of observatories. In view of the long lead time for developing and installing new instruments, the Division of Astrophysics of the American Physical Society has requested the preparation of a White Paper on the status and future of ground-based gamma-ray astronomy to define the science goals of a future observatory operating at energies above 10 GeV, to determine the performance specifications, and to identify the areas requiring technology development. We outline the history and the purposes of the White Paper and report on its findings, which are based on the numerous contributions from US and international scientists.

V. Vassiliev
UCLA

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