

Abstract Submitted
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The Future of Ground-based Gamma-Ray Astronomy: Dark Matter JAMES BUCKLEY, Washington University, WHITE PAPER ON THE FUTURE OF GAMMA-RAY ASTRONOMY, DARK MATTER WORKING GROUP TEAM — In response to the APS request for a White Paper on the status of the future of ground-based gamma-ray astronomy, we formed a working group to address the potential of a future gamma-ray observatory on dark matter science. We report findings of this group on the unique scientific potential of gamma-ray measurements for dark matter searches and the instrumental requirements for the next generation telescope. While many questions remain, our group has identified some of the primary areas where gamma-ray measurements will be of a major impact. Even if direct searches or the LHC detect dark matter particles, gamma-ray measurements will be required to determine the distribution of matter in dark halos and to understand the gravitational role of dark matter in galaxy formation. Moreover, measurements of the line to continuum ratio from gamma-ray measurements will provide constraints on supersymmetric parameters, orthogonal to other measurements. We have identified galactic substructure and local group Dwarf galaxies as important targets for future searches, but continue to solicit input from the community on future directions for a new experiment.

James Buckley
Washington University

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