

Future Detectors for Astrophysics: Some valuable lessons learned from GLAST

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The fields of Particle Physics and Astrophysics both are pursuing answers to very fundamental questions about the physical laws that govern the Universe and the origin, evolution, and ultimate fate of the Universe. It has become increasingly clear that the synergy between the fields is crucial for answering these questions. Planning for new experiments to address questions such as "What is Dark Matter," "What is Dark Energy," and "What are the highest energy cosmic-rays and how are they accelerated" benefit enormously from participation from both disciplines. In spite of the overwhelmingly compelling scientific priority that pursuing the answers to these questions deserves, because of their cost and, to some extent, because of the cultural barriers that still exist between the two fields, there remain big challenges to overcome. In this talk, I will survey some of the experiments being planned for the future from the prospective of an astrophysicist who now has more than a decade of experience working on a challenging project with particle physicists (many of whom are in the audience). I will attempt to draw some lessons learned from the GLAST Project that may be of value beyond GLAST.