Abstract for an Invited Paper for the APR06 Meeting of The American Physical Society

Report from the Dark Energy Task Force

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Understanding the observed cosmic acceleration is widely ranked among the very most compelling of all outstanding problems in physical science. Many believe that nothing short of a revolution will be required in order to integrate the cosmic acceleration (often attributed to "dark energy") with our understanding of fundamental physics. The DETF was formed at the request of DOE, NASA and NSF as a joint subcommittee of the Astronomy and Astrophysics Advisory Committee (AAAC) and the High Energy Physics Advisory Panel (HEPAP) to give advice on optimizing our program of dark energy studies. To this end we have assessed a wide variety of possible techniques and strategies. I will present our main conclusions and discuss their implications.