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The Future of High Energy Polarimetry MARK MCCONNELL, University of New Hampshire — In recent years there has been a steadily increasing interest in exploiting polarimetry as a new tool in gamma-ray astronomy. Gamma ray polarization can be measured by exploiting the characteristics of each interaction mechanism that is used to measure high energy photons: the photoelectric effect, Compton scattering, and pair production. We will review each of these methods and summarize the experimental efforts to date. During the past 10 years there have been several reports of polarization from gamma ray bursts (GRBs), along with reports of gamma ray polarization from both the Crab Nebula and Cygnus X-1. Although of limited statistical significance, these results provide a tantalizing glimpse of the potential for such measurements. We will then provide a summary of current efforts to measure gamma ray polarization and discuss polarimetry as an important capability for future gamma ray missions.

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