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Gamma-ray Bursts with a Sensitive MeV Detector, AMEGO DONGGEUN TAK, University of Maryland, College Park, AMEGO COLLABORATION — Gamma-ray bursts (GRBs) are the brightest electromagnetic transients in the universe. They are attributed to core-collapses of massive stars or mergers of compact objects such as binary neutron star mergers. Even though the origin and the physical process of GRBs have been vigorously studied, many open questions are remained such as the origin of the prompt emission. More sample of bright events, deeper studies in the MeV energy band, polarization of the prompt emission are required in order to address such questions. A sensitive MeV mission, All-sky Medium Energy Gamma-ray Observatory (AMEGO), will potentially satisfy such demands. Simulation studies suggest that AMGEO will be the most sensitive GRB detector, providing a large sample of GRBs: ˜400/years long-duration GRBs and ˜120/years short-duration GRBs. Also, AMEGO will be able to pinpoint the ambiguity among spectral models with sensitive MeV observations, resulting in unveiling the prompt emission mechanism. The understanding of the afterglow and polarization of bright GRBs will be greatly improved with AMEGO observations.

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