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The All-sky Medium Energy Gamma-ray Observatory: Instrument and Mission Capabilities

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The All-sky Medium Energy Gamma-ray Observatory (AMEGO) is a probe-class mission in consideration for the 2020 decadal review designed to operate at energies from ~ 200 keV to >10 GeV. Both Compton scattering and pair-production events must be considered in the AMEGO design since the interaction cross section has a crossover at a few MeV. AMEGO is made of four major subsystems: a plastic anticoincidence detector for rejecting cosmic-ray events, a silicon tracker for measuring the energies of Compton scattered electrons and pair-production products, a CZT calorimeter for measuring the energy and location of Compton scattered photons, and a CsI calorimeter for measuring the energy of the pair-production products at high energies. The prototype subsystems are under development; in this contribution we focus on the details on the development of the silicon tracker subsystem including the potential role of silicon pixel detectors in preparation for beam tests and a balloon flight.

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