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AMEGO-X Mission Overview

Friday 14 October 2022 15:30 (30 minutes)

Gamma-ray and multimessenger astrophysics are frontiers for discovery and uniquely provide access to the extreme processes that sculpt the universe. Multimessenger astrophysics is one of the most exciting and rapidly advancing fields of science. As a priority theme of the Astro2020 Decadal Survey report: New Messengers New Physics, this science is poised to revolutionize our understanding of the extreme universe. Data from NASA's Fermi mission demonstrated that the extreme processes that produce gravitational waves and accelerate neutrinos and cosmic rays also produce gamma rays. In other words, multimessenger sources are gamma-ray sources. Now is the time to develop a powerful mission to fill these critical capability gaps revealed by Fermi and fully capitalize on this exciting new era of multimessenger astrophysics.

The All-sky Medium Energy Gamma-ray Observatory eXplorer (AMEGO-X) will observe nearly the entire sky every two orbits, building up a sensitive all-sky map of gamma-ray sources and emission. It will also access >50% (<10 MeV) and >20% (>10 MeV) of the sky instantaneously, maximizing transient detections and rapid alerts, openly distributed to the astrophysics communities. As a result, AMEGO-X will deliver breakthrough discoveries for a MIDEX class in areas highlighted as the highest scientific priority for Explorer-scale missions in the Astro2020 Decadal Survey Report: gravitational waves, multimessenger astrophysics and time-domain astronomy. This talk presents an overview of the science, instrument, and mission that was submitted in the recent 2021 NASA MIDEX Announcement of Opportunity.

Track

Future Missions/Instruments

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