

Abstract Submitted
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New Mission Galactic Concept: Explorer with a Coded Aperture Mask COmpton Telescope (GECCO) ALEXANDER MOISEEV, University of Maryland, College Park and CRESST/NASA/GSFC — We present a novel concept for a next-generation γ -ray telescope, GECCO. It will conduct high-sensitivity measurements of the cosmic γ -radiation in the under-explored energy range from 100 keV to ~ 10 MeV and create intensity maps with high spectral and spatial resolution, focusing on sensitive separation of diffuse and point-source components. GECCO's main objectives are:

1. understand the nature, composition and fine structure of the inner Galaxy
2. localize and discern the origin(s) of the positron annihilation 511 keV line,
3. resolve Galactic chemical evolution and sites of explosive element synthesis
4. provide identification and precise localization of gravitational wave and neutrino events

The instrument is based on a novel CdZnTe Imaging calorimeter and a deployable coded aperture mask. Expected GECCO performance: energy resolution $< 1\%$, angular resolution $\sim 1'$ in the Mask mode and $\sim 5^\circ$ in the Compton mode. The sensitivity is expected to be better than 10^{-6} MeV/cm²/s at 1 MeV. GECCO can be considered for a future NASA Explorer mission.

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