

Abstract Submitted
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Understanding Element Formation in Dynamic Environments with MeV Gamma-ray Spectroscopy JULIE MCENERY, NASA/GSFC, AMEGO TEAM — The MeV gamma-ray band is the only region of the electromagnetic spectrum where we can directly measure spectral lines from nuclear excitations and de-excitations. Gamma-ray lines have been detected from radioactive isotopes produced in nuclear burning inside stars and supernovae, and from energetic-particle interactions in solar flares. Isotopes with relatively short half lives pinpoint to location of production - e.g. ^{56}Ni directly reflects the source of supernova light. Conversely, Isotopes with long half lives such as ^{26}Al and ^{60}Fe are dispersed in interstellar space from massive-star nucleosynthesis over millions of years, and provide an integrated measure of stellar activity in our Galaxy. Combined, observations of MeV lines can be used to both understand and trace element formation in individual sources and to trace the past history of these explosive events.

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