

Satellite gamma-ray line astrophysics and future MeV detectors

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Gamma-ray lines around MeV bands provide the new astronomical window for the nuclear astrophysics. At present, we have performed the gamma-ray line studies on the cosmic nucleosynthesis with the gamma-ray satellites. Here we briefly review the observations of gamma-ray lines with the INTEGRAL/SPI. Present gamma-ray line spectroscopy discovered 60Fe, 26Al, 511 keV lines in the Galaxy, which provide direct evidence for nucleosynthesis ongoing in the Galaxy. Detections of 44Ti and 56Ni decay chains in nearby SNe and SNRs constrain SN explosion physics. MeV astronomy and gamma-ray line spectroscopy are hindered due to the sensitivity limit of the present space gamma-ray detectors in MeV bands. Future MeV gamma-ray telescope is requested, and can deeply improve the detection window for nuclei in the cosmos. A soft gamma-ray polarimeter for a microsatellite will be designed for the pathfinder, which is the new window for MeV polarization and sciences : gamma-ray lines, pulsars, X-ray binaries.

Collaboration (if any)

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