

RADIOACTIVITY GAMMA-RAY LINE SHAPE AND COSMIC-RAY ACCELERATION

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Observations of the ^{26}Al 1.8 MeV gamma-ray line towards the galactic center show a line width corresponding to velocities of ~ 540 km/sec. It has been proposed that acceleration of cosmic rays from ambient matter may occur in shock regions associated with groups of massive stars. In this case, freshly-produced ^{26}Al should be among the accelerated nuclei, its velocity distribution should be characteristic for an acceleration region. We investigate the profile details of this line in the context of a population synthesis model for massive-star clusters and the associated hot-bubble structures.