Contribution ID: **34** Type: **Oral Presentation**

Chemical Evolution of 26Al and 60Fe in the Milky Way

We present the results of theoretical mass estimates of ^{26}Al and ^{60}Fe throughout the Galaxy, performed with a numerical chemical evolution model including detailed nucleosynthesis prescriptions for both stable and radioactive nuclides. We have tested several sets of stellar yields taken from the literature, either for massive, low and intermediate mass stars, nova systems (only for ^{26}Al) and supernovae Type Ia, and then computed the total masses of ^{26}Al and ^{60}Fe in the Galaxy. In particular, we have studied the bulge and the disc of the Galaxy in a galactocentric radius range between 0 and 22 kpc. We have assumed that the bulge region (between 0 and 2 kpc) evolved very quickly suffering a strong burst of star formation, while the disc formed more slowly and inside-out, in agreement with previous works.
We have compared our results with the ^{26}Al mass observed by the γ-ray surveys COMPTEL and INTEGRAL, in order to select the best model. Concerning ^{60}Fe, for which we do not have any observed value, we have just predicted its mass so as to provide a theoretical constraint for future surveys.
We have found that low and intermediate mass stars as well as Type Ia supernovae contribute negligibly to the two isotopes, while massive stars are the dominant source. The contribution from novae is, however, necessary to reproduce the observations. Our best model predicts a mass of 2.12 M$_\odot$ of ^{26}Al, in agreement with observations, while for ^{60}Fe our best mass estimate is around ~ 1.05 M$_\odot$.
We have also predicted the present rate of injection of ^{26}Al and ^{60}Fe in the Galaxy and compared it with previous results by Timmes et al. (1995). We have predicted a larger present time rate of injection along the disc and a lower one in the bulge, relative to the previous work.

Length of presentation requested

Oral presentation: 8 min + 2 min questions (Poster-type talk)

Please select between one and three keywords related to your abstract

Chemical Evolution: the Milky Way

2nd keyword (optional)

Nucleosynthesis

3rd keyword (optional)

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