

The Effect of Heterogeneities in the Interstellar Medium on the CNO Isotopic Ratios

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In recent years the effect of local heterogeneities in the interstellar medium on the Galactic Chemical Evolution (GCE) has become the subject of various studies (van den Hoek & de Jong 1997, A&A, 318, 231; Copi 1997, ApJ, 487, 704; Ikuta & Arimoto 1999, PASJ, 51, 459; Oey 2000, ApJ, 542, 250; Thomas et al. 2002, <http://xxx.lanl.gov/abs/astro-ph/9710004>). Incomplete mixing of stellar ejecta has been shown to provide a possible explanation, concurrent with the main GCE trend, for the distribution of Silicon isotopic ratios measured in presolar Silicon Carbide grains (SiC) from Asymptotic Giant Branch stars (Lugaro et al. 1999, ApJ, 527, 369). In the present study we test the effect of local inhomogeneities on the CNO isotopic ratios. To this aim we expand our existing simple Montecarlo code to include contributions from nova bursts and low- to intermediate-mass stars. These stellar sources strongly affect the production of the heavy CNO isotopes. Results are compared to isotopic data on individual presolar SiC and oxide grains from primitive meteorites.