Supernovae and the Chirality of the Amino Acids

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A mechanism for creating and selecting amino acid chirality is identified, and subsequent chemical replication and galactic mixing that would populate the galaxy with the predominant species will be described. This involves: (1) the spin of the \(^{14}\)N in the amino acids, or in precursor molecules from which amino acids might be formed, coupling to the chirality of the molecules; 2) the neutrinos emitted from the supernova, together with magnetic field from the nascent neutron star or black hole formed from the supernova selectively destroying one orientation of the \(^{14}\)N, thereby selecting the chirality associated with the other \(^{14}\)N orientation; (3) chemical evolution, by which the molecules replicate on a relatively short timescale; and (4) galactic mixing on a longer timescale mixing the selected molecules throughout the galaxy.