

Cosmic ray Composition Observations and their Implications
for Astrophysical Particle Acceleration and Transport

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Data from recent space missions including ACE and Ulysses have provided detailed information on the elemental and isotopic composition of cosmic rays up to $Z=30$ at energies below 1 GeV/nucleon. These data provide a variety of constraints on the acceleration and transport of cosmic-ray nuclei, including: 1) the nature of the seed population, 2) the fractionation of the accelerated material, 3) the time between stellar nucleosynthesis and particle acceleration, 4) the extent of distributed reacceleration during transport, and 5) the confinement time in the Galaxy and the conditions of interstellar diffusion. I will review the present observational status and discuss models that have been proposed to account for these observations.