

## MASS FRACTIONATION IN SOLAR ENERGETIC PARTICLES AND THE ISOTOPIC COMPOSITION OF THE CORONA

**R. A. Leske** (1), R. A. Mewaldt (1), C. M. S. Cohen (1), E. R. Christian (2), A. C. Cummings (1), P. L. Slocum (3), E. C. Stone (1), T. T. von Rosenvinge (2) and M. E. Wiedenbeck (3)

(1) California Institute of Technology, Pasadena, CA 91125 USA,

(2) NASA/Goddard Space Flight Center, Code 661, Greenbelt, MD 20771 USA,

(3) Jet Propulsion Laboratory, Pasadena, CA 91109 USA.

`ral@srl.caltech.edu`

Solar energetic particles (SEPs) provide a sample of solar material which can be used to determine the elemental and isotopic composition of the solar corona, independent of spectroscopic or solar wind measurements. Recent results from the Advanced Composition Explorer (ACE), however, have clearly established that SEP isotopic composition can vary widely (by factors of  $> 3$ ) from event to event, apparently due to mass fractionation processes during the acceleration and/or transport of these particles. These abundance variations must be taken into account before using SEP measurements to deduce the coronal composition.

Since the launch of ACE in August 1997, we have obtained SEP isotope measurements of up to 10 abundant elements from C to Ni in 18 or more large SEP events. We present these measurements, show that the isotopic and elemental abundance enhancements are strongly correlated, and discuss the corrections needed to obtain coronal abundances. We compare the inferred coronal values and their uncertainties with those derived from solar wind measurements and find generally good agreement.

This work was supported by NASA at Caltech (under grant NAG5-6912), JPL, and GSFC.