Contribution ID: 49

## **Constraints on Galactic Cosmic-Ray Origins from Elemental and Isotopic Composition Measurements**

Monday 26 August 2013 17:18 (24 minutes)

The most recent measurements by the Cosmic Ray Isotope Spectrometer (CRIS) aboard the Advanced Composition Explorer (ACE) satellite of ultra-heavy cosmic ray isotopic and elemental abundances will be presented. A range of isotope and element ratios, most importantly 22Ne/20Ne and 31Ga/32Ge show that the composition is consistent with source material that is a mix of ~80% ISM (with Solar System abundances) and 20% outflow/ejecta from massive stars. In addition, our data show that the ordering of refractory and volatile elements with atomic mass is greatly improved when compared to an

~80%/20% mix rather than pure ISM, that the refractory and volatile elements

have similar slopes, and that refractory elements are preferentially accelerated by a factor of ~4. We also discuss recent gamma-ray measurements and show the complementary nature of gamma- and cosmic-ray measurements. We conclude that these data are consistent with an OB association origin of GCRs.

Presenter: BINNS, Walter

Session Classification: High-energy cosmic rays and their propagation