#0020

Origin of nucleosynthetic isotope anomalies in Ca-Al-rich inclusions

Kruijer, T.S., Brennecka, G.A., Kleine, T.
University of Münster, Institut für Planetologie, 48149 Münster, Germany. thomas.kruijer@wwu.de.

Nucleosynthetic isotope anomalies can shed light on our solar system's earliest evolution. Such anomalies are ubiquitous in Ca-Al-rich inclusions (CAIs), and previous work reported large and variable nucleosynthetic W isotope anomalies, primarily in fine-grained CAIs [1]. To better understand the significance and origin of such variable anomalies, we investigate chemically diverse isotope systems, such as Sr, Ba, and U, in the exact same samples as previously analysed for W isotopes. Our first results show that all investigated fine- and coarse-grained CAIs are uniformly enriched in ^{84}Sr and ^{135}Ba relative to Earth, consistent with an excess in *r*-process isotopes and previous studies [2]. However, such isotope signatures are inconsistent with the variable *r*-excesses observed in W isotopes from the same samples, suggesting that the source of nucleosynthetic anomalies is different for lithophile and siderophile elements. As such the variable W isotopic anomalies may reflect varying contributions of a (presolar) metal carrier, which would not affect the Sr and Ba isotopic compositions of the CAIs.

[1] Kruijer, T. et al. (2014) *EPSL* **403**, 317-327. [2] Brennecka, G.A. et al. (2013) *PNAS* **110**, 17241-17246.

Cite abstract as:
Kruijer, T.S., Brennecka, G.A., Kleine, T. (2015) Origin of nucleosynthetic isotope anomalies in Ca-Al-rich inclusions. Paneth Kolloquium, Nördlingen (Germany), abstract URL:
http://www.paneth.eu/PanethKolloquium/2015/0020.pdf (abstract #0020).