

+

#0227

+

**Chemical projectile target interaction in
hypervelocity cratering experiments
(MEMIN research group)**

Hecht*, L., Ebert, M., Deutsch, A., Kenkmann, T.

*Museum für Naturkunde (MfN), Leibniz-Institut für Evolutions-
und Biodiversitätsforschung, Invalidenstraße 43, D-10115 Berlin,
Germany Lutz.Hecht@mfn-berlin.de

This study addresses fundamental topics in impact cratering: (i) projectile partitioning into ejecta, and (ii) inter-element fractionation of meteoritic elements during projectile - target interaction. The objective of this work is to investigate the influence of impact energy, water-saturation and target porosity on (i) and (ii). This presentation is focussed on hypervelocity impact experiments carried out with Cr-V-Co-Mo-W-rich steel projectiles and SiO₂-rich targets. Detailed geochemical analyses of highly shocked ejecta fragments show distinct element fractionation processes between co-existing target and projectile melts; due to differing siderophile and lithophile properties of the projectile tracer elements. Various impact energies (~7600 J and ~800 J) as well as different water-saturation of the target (~0 % and ~50 %) yield no effect on the general geochemical processes. However, experiments with almost non-porous target (quartzite) show different features of projectile-target interaction compared to highly porous targets.

+

+

Cite abstract as:

Hecht, L., Ebert, M., Kenkmann, T. (2012) Chemical projectile target interaction in hypervelocity cratering experiments (MEMIN research group). Paneth Kolloquium, Nördlingen (Germany), abstract URL: <http://www.paneth.eu/PanethKolloquium/2012/0227.pdf> (abstract #0227).