#0042

Chondrule size sorting prior to cluster chondrite formation in unequilibrated ordinary chondrites.

Metzler, K., Inst. f. Planetologie, Universitaet Muenster, Wilhelm-Klemm-Str. 10, 48149 Muenster, Germany. knut.metzler@uni-muenster.de.

Cluster chondrites (clch´s) occur as lithic clasts (≤ 10 cm) in unequilibrated ordinary chondrites. They are characterized by close-fit textures of deformed and indented chondrules. Their source rocks seemingly accreted when many chondrules were still hot and viscously deformable, i.e. only hours to a few days after chondrule formation [1]. Clch clasts with distinctly different chondrule populations occur side by side in the LL3 chondrite NWA 5205. They differ by 1) mean chondrule size, 2) bulk chemistry (slightly), 3) concentration of planetary noble gases, 4) mean degree of chondrule deformation, 5) fractions of chondrule textural types, and 6) fraction of type I chondrules. This may indicate repeated chondrule forming events, each having created a peculiar chondrule population, followed by rapid clch formation and accretion onto the same planetesimal. Another and favored possibility is that a single event produced a bunch of hot chondrules and that different chondrule populations formed subsequently by size-sorting due to chondrule-gas interaction prior to clch formation.

[1] Metzler K. 2012. Meteoritics & Planetary Science 47, 2193-2217.

Cite abstract as:
Metzler, K. (2013) Chondrule size sorting prior to cluster chondrite formation in unequilibrated ordinary chondrites. Paneth Kolloquium, Nördlingen (Germany), abstract URL: http://www.paneth.eu/PanethKolloquium/2013/0042.pdf (abstract #0042).