

+

#0173

+

Macro chondrules in chondrites – formation due to rapid collisions of totally molten spherules?

Weyrauch*, M., Horstmann, M., Wurm, G., Bischoff, A.,
*Institut für Planetologie, Wilhelm-Klemm-Str. 10, 48149
Münster, Germany. Email: mona.weyrauch@uni-muenster.de.

In this study 74 macro chondrules of diameters >3 mm were examined. The macro chondrules are texturally similar to normal-sized chondrules. However, most of the macro chondrules show elongated crystals (barred or radial) or are very fine-grained. This distribution of the textural types among the macro chondrules is reverse to that of normal-sized chondrules, where porphyritic textures are most abundant. This in addition to the fact that the macro chondrules in this study have up to >25,000 times the mass of a chondrule with 300 µm diameter (average in H-chondrites [1]) leads to the question, how macro chondrules may have formed? Due to the similar textural types, the formation processes should be similar to those of normal-sized chondrules. However, we argue that the conditions must have been different. We suggest that macro chondrules formed due to rapid collisions among totally molten spherules in areas of high dust density and/or high electrostatic attraction [2] in the solar nebula.

[1] Weisberg, M. K. et al. (2006) In: Meteorites and the Early Solar System II, 19-22. [2] Weisberg, M.K. et al.

+

(1988) Meteoritics 23, 309.

+

Cite abstract as:

Weyrauch, M., Horstmann, M., Wurm, G., Bischoff, A. (2012) Macro chondrules in chondrites - formation due to rapid collisions of totally molten spherules?. Paneth Kolloquium, Nördlingen (Germany), abstract URL: <http://www.paneth.eu/PanethKolloquium/2012/0173.pdf> (abstract #0173).