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Chondrules in ordinary chondrites - textural analysis of droplets in the size range of 1-3 mm.

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In this study the textures of 160 chondrules in ordinary chondrites from the Greifswald Collection were determined in the size range of 1-3 mm and compared with chondrules <1 mm [1] and chondrules >3 mm [2]. In general, chondrule types (barred, radial, porphyritic, and cryptocrystalline) were found similar in texture to those found among the normal-sized chondrules and macrochondrules. One new chondrule subtype (multi-barred olivine [MBO] chondrules) was defined to better describe the texture of one of the studied chondrules.

The results clearly demonstrate that the abundances of distinct chondrule types are changing with chondrule size: Among the small chondrules (<1 mm [1]) the porphyritic types dominate, while the abundances of the barred and radial chondrule types (e.g., BO, RP) are increasing with increasing chondrule size. This study is clearly supporting earlier results on macrochondrules [2].

[1] Rubin, A. E. (2000) Earth Science Reviews 50, 3–27. [2] Weyrauch, M. et. al. (2012) Meteoritics & Planetary Science 47, 2237-2250.

Cite abstract as:
Cerny, A.C., Grathoff, G.H., Bischoff, A. (2015) Chondrules in ordinary chondrites - textural analysis of droplets in the size range of 1-3 mm. Paneth Kolloquium, Nördlingen (Germany), abstract URL: http://www.paneth.eu/PanethKolloquium/2015/0005.pdf (abstract #0005).