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**Experiments on the consolidation of chondrites
and the formation of dense rims around
chondrules**

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Fine-grained chondrule rims, that appear in CM chondrites have a typical thickness of 19-47 % of the chondrule diameter [1]. The rims are indicated by high density regions in which the volume filling factor is higher by $\Delta\phi \sim 0.1$ compared to the overall chondrite's density [2]. We tested the formation hypothesis of those rims in a dynamic compaction event [3]. Therefore, the pressure range in which the different chondrite classes were compacted was figured out, first. We measured the consolidation of porous chondrule-dust mixtures experimentally and analyzed the resulting porosity by μ -XRT. Here, we found CM chondrites to be compacted in a dynamic pressure range of 60-150 MPa, which corresponds to collision velocities of about 200 m/s. On the contrary, ordinary chondrites were compacted by an one order of magnitude higher pressure.

The formation hypothesis of fine-grained rims by a compaction process could not be confirmed, as no increase of the volume filling factor in the vicinity of the chondrules was found.

[1] Morfill, G. et al. (1998) Icarus 134, 180-184. [2]

Wasson, J.T. (1995) Meteoritics 30, 595-595. [3] Trigo-

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Rodriguez, J. et al. (2006) GCA 70, 1271-1290.

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