**THE FORMATION LOCATION OF CHONDRULES IN INDIVIDUAL CHONDRITES.**

D. Hezel[1], E. Parteli.[1]University of Cologne, Department of Geology and Mineralogy, Zülpicher Str. 49b, 50674 Köln, Germany, [2]University of Cologne, Department of Geosciences, Pohligstr. 3, 50969 Köln, Germany

Chondrules are a major component of chondritic meteorites and potentially populated the entire protoplanetary disk at an early stage of planet formation. These components provide insights to the physical and chemical evolution of the protoplanetary disk. An important constraint for the protoplanetary disk is whether chondrules were transported and mixed throughout the disk, or whether chondrules formed in local environments. Both scenarios have previously been proposed.

We use bulk chondrule compositional data from the recently published ChondriteDB database [1] in combination with a mixing model to explore the constraints for mixing chondrules from different locations within the protoplanetary disk into single chondrites or their parent bodies, respectively.

Our results so far indicate that the bulk compositional variations of chondrules in single chondrites are principally in agreement with mixing chondrules from more than one reservoir, however, only within a narrow range of parameters for such parental reservoirs: chondrules could only have originated from few parental reservoirs (max. ~3), and the bulk chondrule variation of these parental reservoirs would need to have been close to the bulk chondrule variation of the final chondrite.

The current results allow mixing of chondrules only from few parental reservoirs which have similar compositional chondrule populations. Should this be confirmed by additional modelling results, mixing of chondrules form multiple reservoirs into individual chondrites might seem an unnecessary and unlikely complication of chondrite parent body agglomeration.

**References:** [1] Hezel, D. C., Harak, M. and Libourel, G. (2018). What we know about elemental bulk chondrule and matrix compositions: presenting the ChondriteDB database. *Chemie der*

*Erde – Geochemistry* (in press).