# Isotope genealogy and chronology of individual chondrules from ordinary chondrites.

Burkhardt*, C, Jansen, C.A., Marrocchi, Y., Villeneuve, J., Wölfer, E., Schneider J.M., Kleine, T. *MPS, Justus-von-Liebig Weg 3, 37077 Göttingen, Germany burkhardtc@mps.mpg.de.

As an ubiquitous high-T component in primitive meteorites, chondules are key for reconstructing the evolution of dust in the accretion disk surrounding the young Sun. To better constrain the composition of the inner, non-carbonaceous (NC) part of the disk, we present here a petrographic, chemical, O, Ti, and Cr isotopic, as well as Al-Mg, and Mn-Cr chronometric study of chondrules extracted from ordinary chondrites. The chondrules are of diverse texture and com position, but exhibit a narrow range of O, Ti, and Cr isotope compositions. The isotopic signatures in Ti and Cr are not mediated by gas-melt reactions, and imply formation of LL chondrules from an isotopically homogeneous precursor mix. Internal Al-Mg isochrons of chondrules return an average age of ~1.8±0.6 Myr after CAI, consistent with an ~2.2±0.8 Myr age obtained from a Mn-Cr bulk chondrule isochron. Overall, the data suggest that the bulk of the OC chondrules formed ~2 Myr after the beginning of the solar system in a well-mixed reservoir dominated by NC dust, and hence, limited input of outer disk materials.