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E I N L A D U N G

zum

V E R A - S E M I N A R

von

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The short-lived ^{182}Hf-^{182}W chronometer as a window into early solar system formation

During the last decade W isotopes have proven particularly useful as chronometer for several key stages of early solar system evolution. Even though the rare p-process isotope ^{180}W in meteorites might contribute to our understanding of homogenization mechanisms within the protoplanetary disk (e.g., Schulz et al., 2013), the short-lived ^{182}Hf-^{182}W decay-system provides important constraints on the timescales of asteroidal core formation and silicate differentiation (e.g., Schulz et al., 2009, 2010, and 2012).

After a brief introduction to the objects of these investigations (i.e., meteorites), this talk will mainly be focused on the principles and pitfalls of a W-isotope-based chronometry of extraterrestrial matter, as well as on our increasing understanding of the evolution of the early solar system as a result of the numerous studies using the W isotope tool (e.g., Kruijer et al., 2014 and references therein).

Schulz T., Münker C., Palme H., Mezger K. (2009) Hf-W chronometry of the IAB iron meteorite parent body. *Earth and Planetary Science Letters* 280, 185-193

Schulz T., Münker C., Palme H., Mezger K., Hf-W chronometry of primitive achondrites (2010). *Geochimica et Cosmochimica Acta* 74, 1706-1718

Schulz T., Upadhyay D., Münker C., Mezger K. (2012) Formation and Exposure-history of non-magmatic iron meteorites and winonaites: Clues from Sm and W isotopes. *Geochimica et Cosmochimica Acta* 85, 200-212

Schulz T., Münker C., Peters S.T.M. (2013) p-Process ^{180}W anomalies in iron meteorites: nucleosynthetic versus non-nucleosynthetic origins. *Earth and Planetary Science Letters* 362, 246-257

Kruijer T.S., Touboul M., Fischer-Godde M., Bermingham K.R., Walker R.J., Kleine T. (2014) *Protracted core formation and rapid accretion of protoplanets. Science* 344, 6188: 1150-1154.

Donnerstag, 28. Januar 2016, 16:30 Uhr

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R. Golser W. Kutschera E.M. Wild