

+

#0007

+

Trace element analysis of iron meteorites using quadrupole ICP-MS.

Regelous*, M., Duan, X. *GeoZentrum Nordbayern, Universität Erlangen-Nürnberg marcel.regelous@fau.de

Trace element analyses of magmatic iron meteorites provide insights into the processes of formation and crystallisation of asteroid cores. Most existing trace element data for iron meteorites were obtained using neutron activation analysis. ICP-MS methods have the advantages of low detection limits, simple sample preparation and short analysis times. A disadvantage of Q-ICP-MS is that molecular interferences prevent accurate analysis of several important elements (e.g. $^{56}\text{Fe}^{16}\text{O}$ interferes on ^{72}Ge).

In order to reduce interferences, we are developing ion-exchange methods to remove Fe from sample solutions prior to analysis, and use a desolvating nebuliser sample introduction system to reduce other solution-based interferences to negligible levels. After Fe removal, Ge can be measured accurately even in IVA iron meteorite types having Fe/Ge ratios of 10^{+7} . Our method allows rapid, accurate measurement of all the highly siderophile elements (including Os if solutions are not heated) and transition metals. Some non-siderophile elements, present in iron meteorites at very low concentrations can also be measured using this method, because matrix removal allows sample solutions to be

+ analysed at lower dilution factors.

+

Cite abstract as:

Regelous, M., Duan, X. (2013) Trace element analysis of iron meteorites using quadrupole ICP-MS. Paneth Kolloquium, Nördlingen (Germany), abstract URL: <http://www.paneth.eu/PanethKolloquium/2013/0007.pdf> (abstract #0007).