



Isotope ratios in Geochemistry – highest sensitivity and scan speed

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The applications for trace elemental analysis are steadily increasing: beside the classical fields such as environmental and semiconductor analysis more and more interest for trace elemental analysis in food, geochemical analysis and material characterization can be observed, not to forget hot topics such as analysis of isotope ratios and nanoparticles. At the same time the requirements for lower detection limits, sample throughput, matrix robustness, and easy to use instruments are increasing.

An important performance characteristic for ICP-MS is the sensitivity. The Bruker aurora Elite achieves a sensitivity of 1.5 GHz/ppm, which directly translates to smaller spot sizes when doing laser ablation in geochemical analyses, and with that avoiding counting statistical limitations in the single digit μm spot size range. In combination with shortest integration times of 0.1ms it comes close to an almost simultaneous measurement with a single-collector ICP-MS. At the same time, other important parameters such as low oxide ratios and abundance sensitivity are maintained, at the typical low levels of a quadrupole ICP-MS.

The presentation will describe the layout of an ICP-MS designed for highest sensitivity and show by means of application examples like laser ablation ICP-MS and liquid analysis the performance for isotope ratio analyses.