



Advances in collision cell and sector-field based ICP-MS for improved isotope ratio analysis

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A variety of mass spectrometers have been coupled with ICP ion sources for isotope ratio analyses. These range from multi-collector (MC) for the highest accuracy and precision, down through single-collector sector field (SF) to quadrupole (Q) based instruments.

This presentation will highlight recent advances in two of these ICP-MS techniques for improved isotope ratio analyses:

The introduction of collision cell technology (CCT) to Q-ICP-MS has led to the elimination of spectral interferences in multielemental analysis. Additional advantages from the use of CCT in the analysis of natural and depleted $^{235}/^{238}\text{U}$ isotope ratios will be examined in this presentation.

By the addition of a single, high performance, purpose built faraday detector to SF-ICP-MS, an increase in the linear dynamic range to over 10^{12} has been achieved, improving precision and accuracy in the analysis of large isotope ratios, such as $^{234}/^{238}\text{U}$. Important factors such as decay time and abundance sensitivity will be addressed in this presentation.