

Optimising the Isotopx NGX Noble Gas Mass Spectrometer: Analysis strategies

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Isotopx has made significant advancements in improving the signal-to-noise performance of noble gas mass spectrometers through the incorporation of patented technologies in the NGX design.

The first technology focuses on enhancing the Faraday detectors using the capacitor-based ATONA® amplifier [1], which combines a low noise floor with a large dynamic range.

The second innovation involves the integration of a low-temperature cathode into the source [2], increasing sensitivity without compromising filament lifetime or promoting interfering species.

We also introduce a newly patented Ionisation Inhibition design which prevents mass fractionation and sample consuming ionisation during sample admittance and equilibration. This affords higher precision on the subsequent regressions by eliminating the need for the extended extrapolations of data sets.

This presentation delves into the methodologies employed to exploit these new technologies, thereby optimizing the analysis strategies for NGX mass spectrometers. Specifically, we explore various considerations, including detector selection, on-peak integration times, and baseline durations for each target isotope, to maximize the benefits of the enhanced NGX mass spectrometer.

References:

[1] Cox, S. E., Hemming, S. R., and Tootell, D. (2020) The Isotopx NGX and ATONA Faraday amplifiers *Geochronology Discussions*

[2] Mixon, E. E., Jicha, B. R., Tootell, D., Singer, B. S (2022) *Chemical Geology Volume 593*