‘Medium resolution’ applications of the Perspective IS; oxygen and beyond

STEPHEN F. RABLEN[1]*, LAURENCE YEUNG[2], PHIL FREEDMAN[1]

[1] Nu Instruments Ltd., Unit 74, Clywedog Road South, Wrexham, LL13 9XS, UK (*correspondence: stephen.rablen@nu-ins.com)

[2] Department of Earth Science, MS-126 Rice University, Houston, TX 77005 USA (lyeung@rice.edu)

The Nu Perspective IS is a stable isotope ratio mass spectrometer designed to measure the multiple isotopologues of carbon dioxide at masses 44 to 49, oxygen at masses 32 to 36 and many other species of gas. Modifications to the ion source allow the ‘resolving power’ (m/δm) of the instrument to be increased without the sacrifice in sensitivity found with the use of narrowed slits. This ‘medium resolution’ can resolve isobaric interferences while maintaining the large ion currents necessary for precise clumped isotope analysis. For example, applying the system to oxygen at mass 36, $^{18}O^{18}O$ can be separated from $^{1}H^{35}Cl$ and ^{36}Ar, allowing precise measurements of $^{18}O^{18}O$ without argon corrections. Results for oxygen analysis as well as other applications of the system will be presented.