

**ADVANTAGES IN ELEMENTAL ANALYSIS USING AN AXIAL TIME OF FLIGHT
INDUCTIVELY COUPLED PLASMA MASS SPECTROMETER**

GLEN STUTCHBURY^a, LLOYD ALLEN^b, JANOS FUCSKO^b AND STUART GEORGITIS^b

a LECO Australia Pty. Ltd. A/10 Salisbury Road, Castle Hill, NSW 2154 Australia

b LECO Corporation, 3000 Lakeview Avenue, St. Joseph, MI 49085

This presentation will focus on elemental and isotopic analysis using an Inductively Coupled Plasma Mass Spectrometer (ICP-MS) instrument based on a Time of Flight (TOF) Mass Analyzer. Using a TOF mass analyzer in conjunction with an ICP source, true simultaneous multielement analysis is accomplished with spectral acquisition rates up to 30,000 spectra/sec. Advantages of simultaneous analysis include: multielement (unlimited) analysis of fast transient signals (transients with full widths < 1 sec), improved isotope ratio precision, and increased sample throughput. These features are particularly important for multielement/isotopic spot analysis by laser ablation and discrete solution analysis. Furthermore, multi-element analysis of transient signals produced following chromatographic separation is becoming an important feature for speciation analysis. Data will be presented for multielement analysis by TOF ICP-MS using a variety of sample introduction systems including discrete solution analysis (10 µl injections) and direct solid sample analysis by laser ablation producing fast transient signals. Furthermore, demonstration of isotope ratio measurements will be reviewed for both steady state and transient signals. Finally, future perspectives on the benefits of TOF ICP-MS will be explored.