STATE-OF-THE-ART ICPMS SAMPLE INTRODUCTION SYSTEMS FOR NANOPARTICLE, SINGLE CELL, AND ELEMENTAL SPECIATION. **C Derrick Quarles Jr.**,[1] Patrick Sullivan,[2] Benjamin T. Manard,[2] Paula Menero Valdes,[3] Beatriz Fernandez[3], [1]Elemental Scientific, Inc., Omaha, NE, USA ; [2]Oak Ridge National Laboratory, Oak Ridge, TN, USA; [3]University of Oviedo, Oviedo, Spain. (Derrick.Quarles@icpms.com)

Inductively coupled plasma mass spectrometry (ICPMS) has become the workhorse instrumentation for elemental analysis. The flexibility of the ICPMS to be coupled with various sample introduction systems has allowed for many techniques to emerge, such as liquid chromatography (LC)-ICPMS, laser ablation (LA)-ICPMS, single particle (sp)-ICPMS, and single cell (sc)-ICPMS. This work will focus on automating these techniques, specifically LC-ICPMS, sp-ICPMS, and sc-ICPMS, but also keeping them flexible enough to be able to run routine samples without massive instrumental changes. To demonstrate the performance, results from urine As speciation (LC-ICPMS), Au and Pt nanoparticles (sp-ICPMS), and ARPE-19 cells (sc-ICPMS) will be presented.