

Abstract Submitted
for the 4CF11 Meeting of
The American Physical Society

Comparing Theory and Experiment for Analyte Transport in the First Vacuum Stage of the ICP-MS MATTHEW ZACHRESON, Brigham Young University, ROSS SPENCER — The Direct Simulation Monte Carlo algorithm as coded in FENIX has been used to model the transport of trace ions in the first vacuum stage of the inductively coupled plasma mass spectrometer. Haibin Ma collected two radial trace density profiles: one .5 mm upstream of the sampling cone and the other 10 mm downstream. We will compare the simulation results from FENIX with the experimental results. To better understand the simulation results, two fluid codes have been written. One uses ideal convection and the other uses both convection and diffusion. This enables us to compare convection, convection and diffusion, and full long-mean-free-path simulation with each other and with the experimental data in order to see the importance of each of these effects. Results of these comparisons will be presented.

Matthew Zachreson
Brigham Young University

Date submitted: 16 Sep 2011

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