

Abstract Submitted
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Modeling Ion Flow in an Inductively Coupled Plasma Mass Spectrometer using Navier-Stokes Equations MATTHEW ZACHRESON — The Inductively Coupled Plasma Mass Spectrometer is a device which allows high-temperature argon gas to expand into vacuum to create an ion beam from the trace ions entrained in the flow. The steady-state drift/diffusion fluid equations have been used to model the transport of these trace ions in the first vacuum stage of this device. The effect of an ambipolar electric field has been included and is found to be important. Discrepancies exist, however, between the calculation results and experimental data collected in the vacuum region, especially where the ion flow interacts with a post-nozzle shock wave.

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