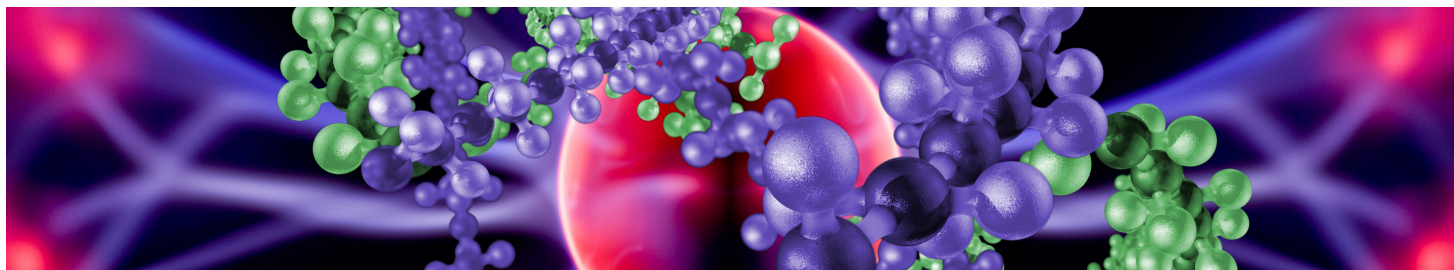


Resistive-Glass Drift Tube for Use as a Controlled Kinetic Energy Ion Source



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Technology Summary

The ions produced by conventional methods are too energetic to be captured by miniature ion traps, limiting the range of substances that can be analyzed by microscale systems. The subject invention is a resistive-glass ion drift tube for controlling the mean kinetic energy and the energy distribution of externally formed ions for spectroscopy and other applications. The resistive drift tube in the device slows down ions both by pressure on the tube and the voltage applied to the tube, leading to ions with a mean translational kinetic energy less than 5 kiloelectron volts—capable of being captured by miniature ion traps. In addition, the resistive glass eliminates or greatly reduces wall charging, creating a more uniform electric field to move the ions. The current device can be used to retrofit existing systems or, when coupled with an ion source, ion trap, and detector, as a completely portable ion trap spectrometer system.

Patents

Guido F. Verbeck, William B. Whitten, and Jeremy Moxom.
Controlled Kinetic Energy Ion Source for Miniature Ion Trap and Related Spectroscopy System and Method, U.S. Patent US 7,838,820 B2, issued November 23, 2010.

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