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Patent(s) Issued

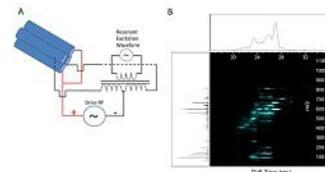
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Available Technologies

Improved Multipole Ion Guide Using RF Confinement and Excitation

SUMMARY

A variety of widely used mass spectrometers apply multipole ion guides to transport ions from one location to another and fragment them within the instrument. This fragmentation allows scientists to analyze the structure of materials. However, particularly in multiplexed collision-induced dissociation experiments, this transport approach either under-fragments or over-fragments the ions, yielding results that do not allow for structural characterization. PNNL's newly developed multipole ion guide solves that problem by supplying a stream of charged ions to the ion guide and applying a radio frequency (RF) field to confine ions through the guide. When a particular excitation RF field is applied to one or more of the rods associated with the guide, ions at a particular secular frequency are disassociated while other ions are left intact, yielding more representative results. The invention is particularly useful as a means of disassociating ions separated based upon mobility in an ion mobility spectrometer.



ADVANTAGES

- * Can be applied to a quadrupole, hexapole, or octopole ion guide
- * Reduces both over-fragmentation and under-fragmentation of ions
- * Can be implemented in various ways to meet specific analytical needs or instrumentation specifications
- * Provides more accurate results that are more easily interpreted than other approaches

RELATED LINKS

» **J. Am. Soc. Mass. Spectrom.** (2014) 25:563Y571

Webb IK; Chen T-C; Danielson WF III; Ibrahim YM; Tang K; Anderson GA; Smith RD. Implementation of Dipolar Resonant Excitation for Collision Induced Dissociation with Ion Mobility/Time-of-Flight

MS. Journal of the American Society of Mass Spectrometry (2014) 25:563Y571

<http://link.springer.com/article/10.1007%2Fs13361-013-0815-6>

Patents & Intellectual Property

» Patent #: 8772711B1

Technology Portfolio(s)

» Mass Spectrometry Instrumentation

Potential Industry Applications

» Chemicals

» Healthcare, Pharma, Biotech & Medical

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