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Patent(s) Issued

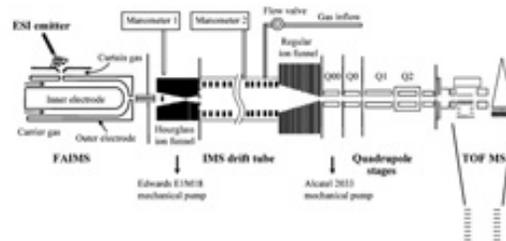
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Available Technologies

# Field Asymmetric Ion Mobility Spectrometry (FAIMS) Technology

## SUMMARY

Field asymmetric Ion mobility spectrometry (FAIMS), wherein ions are separated and/or characterized by differences in their mobility in high and low electric fields, is receiving increasing attention as a means of ion filtering and providing an additional level of separation in mass spectrometry analyses. PNNL has developed a number of patented technologies to improve the analytical capabilities of FAIMS devices and their interfacing with mass spectrometry instruments. These include:



\* A patent covering the first successful coupling of a FAIMS device with an IMS drift tube device as a front-end separation method in a mass spectrometer instrument; substantially orthogonal separation of ions was achieved (U.S. Patent 7,148,474).

\* A method and apparatus for aligning ions in a dipole direction within a FAIMS device so that the ions can be separated and/or characterized based on measurements other than their orientationally averaged cross-section (U.S. Patent 7,170,053).

\* A method and apparatus for separating and characterizing ions based on their higher order differential mobility (U.S. Patent 7,449,683).

\* New interfaces for FAIMS that substantially increase downstream ion transmission to subsequent MS or IMS devices (U.S. Patents 7,339,166 and 7,491,930).

\* A method of operating a FAIMS device at lower pressures for better interfacing to a mass spectrometer and for electronically switching a FAIMS interface on and off when the interface is used in conjunction with a mass spectrometer (U.S. Patent 8,263,930).

\* A patent covering the use of electric field counter flows to improve ion mobility resolution over a limited mass range.

### Patents & Intellectual Property

- » Patent #: 7,148,474
- » Patent #: 7,170,053
- » Patent #: 7,339,166
- » Patent #: 7,491,930
- » Patent #: 7,449,683
- » Patent #: 8,263,930 B2

### Technology Portfolio(s)

- » Mass Spectrometry Instrumentation

### Potential Industry Applications

- » Chemicals
- » Healthcare, Pharma, Biotech & Medical
- » Professional Services
- » Security

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