

Battelle Number(s):

16781-E

Patent(s) Issued

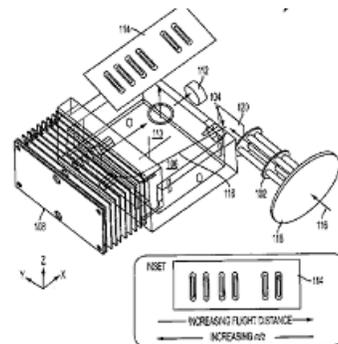
Available for licensing in all fields

Available Technologies

Distance-of-Flight, Time-of-Flight Mass Spectrometry

SUMMARY

In association with scientists affiliated with Indiana University, PNNL scientists have developed a mass spectrometer technique that combines distance-of-flight ion measurements with time-of-flight ion measurements to provide improved analysis capabilities. Time-of-flight mass spectrometry is a well-known technique in which ions are accelerated in a constant energy field and separated based on their time of arrival at a single fixed detector. Distance-of-flight mass spectrometry is a more recently developed process in which ions are accelerated in a constant momentum field and separated based on their distance of travel to an array of detectors at a fixed time. The combined methods provide analytical advantages compared to either method used individually. For example, distance-of-flight instruments are typically limited in the mass range that they can analyze, even though they provide superior mass separation and resolution for some types of ions. The combined instrument enables analysis of the full mass range of a sample using time-of-flight and then uses these results to analyze a specific mass range of interest using distance-of-flight, offering time and resolution benefits.



ADVANTAGES

- * Allows for the high-mass-range capabilities of time-of-flight mass spectrometry to be implemented seamlessly with the low electronic noise and simultaneous detection capabilities of distance-of-flight mass spectrometry
- * Switching between time-of-flight and distance-of-flight modes can be accomplished within the time window of a single chromatographic peak
- * Allows for distance-of-flight and time-of-flight mass spectrometry to be conducted separately or in combination

STATE OF DEVELOPMENT & AVAILABILITY

For more information on licensing this technology, please contact bbrizzar@indiana.edu or go to Indiana University Research and Technology Corporation's website for additional contact information.

Patents & Intellectual Property

» Patent #: 8648295

Technology Portfolio(s)

» Mass Spectrometry Instrumentation

Potential Industry Applications

» Chemicals

Bruce J. Harrer
Pacific Northwest National Laboratory
(509) 375-6958
bruce.harrer@pnnl.gov
<http://availabletechnologies.pnnl.gov>



Proudly Operated by **Battelle** Since 1965