Discontinuous Atmospheric Pressure Interface

Track Code: 64870

Categories:
- Chemical Engineering
- Chemistry and Chemical Analysis

Keywords:
- Chemical Engineering
- Chemistry and Chemical Analysis
- Mass Spectrometry

Mass spectrometry (MS) is commonly used in analytical laboratories that study physical, chemical, or biological properties of compounds. MS uses large vacuums to lower pressure in the chambers, which is necessary to maintain the integrity of the sample. The large vacuums limit the flexibility of adapting MS for portability and field use.

Purdue University Researchers have developed discontinuous atmospheric pressure ionization (DAPI), which is a method of interfacing atmospheric pressure ion sources, including electrospray and desorption electrospray ionization sources, to mass spectrometers, for example miniature mass spectrometers, in which the ionized sample is discontinuously introduced into the mass spectrometer. Discontinuous introduction improves the match between the pumping capacity of the instrument and the volume of atmospheric pressure gas that contains the ionized sample. The reduced duty cycle of sample introduction is offset by operation of the mass spectrometer under higher performance conditions and by ion accumulation at atmospheric pressure.

Advantages:
- Allows for smaller mass spectrometers
- Increases portability and field use

Potential Applications:
- Mass spectrometers
- Field use of mass spectrometers

People:
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Intellectual Property:

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Type: CON-Patent
Country of Filing: United States
Patent Number: 9,058,967
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Application Date: March 27, 2014
Type: CON-Patent
Country of Filing: United States
Patent Number: 8,853,627
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Application Date: October 2, 2012
Type: CON-Patent
Country of Filing: United States
Patent Number: 8,766,178
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**Application Date:** May 30, 2008  
**Type:** NATL-Patent  
**Country of Filing:** China  
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**Application Date:** November 20, 2009  
**Type:** Utility Patent  
**Country of Filing:** United States  
**Patent Number:** 8,304,718  
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**Application Date:** February 25, 2011  
**Type:** PCT-Patent  
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