Mass Analysis in Air at Atmospheric Pressure

A new mass analysis concept utilizes trapped ions and applied electromagnetic fields and forces to accurately separate substances based on their mass-to-charge values.

Accurate mass analysis for substances has been a constant challenge for researchers in many fields, notably in chemistry and physics. Mass spectrometers have been used in this endeavor for decades, with modern spectrometry techniques dating back nearly 100 years. However, there is always the constant need for improving the methods for mass analysis, whether it is in terms of operating conditions, accuracy, or as science continues to progress at an increasing rate.

Researchers at Purdue University have developed a new concept for mass analysis. By trapping an ion population in either two or three dimensions with an appropriate electromagnetic field, applied excitations by a signal corresponding to characteristic frequencies of the trapped ions and applied pneumatic forces lead to the separation of ions. This separation is by given mass/charge values; thus, can be used for further analysis.

Advantages:

-Separation by mass/charge values

-New opportunities for mass analysis

Potential Applications:

-Analytical chemistry

-Physics

TRL: 3

Intellectual Property:

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Category
Materials Science & Nanotechnology/Materials Testing & Characterization Tools
Biotechnology & Life Sciences/Analytical & Diagnostic Instrumentation

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