

Method for Imaging Mass Spectrometry (#4202)

Method of improving mass spectrometry imaging using a solvent-free coating process

Georgia Tech and University of Colorado inventors have developed a method for depositing solvent-free molecules on surfaces of samples for imaging mass spectrometry. This method consists of loading a sample into the apparatus and depositing sublimated molecules, molecules that were originally in solid phase and converted to the gas phase, on the surface of the samples. The apparatus is able to control the positioning of the sample as the molecules are deposited on the surface, allowing the molecules to uniformly coat the sample. This technique will allow for improved spatial resolution and detection sensitivity in mass spectrometry.

Benefits/Advantages

- **Precise** – Method allows for automatic, precise control of molecule deposition
- **Scalable** – Deposition method can be done on large or multiple samples
- **Solvent-Free** – Improved imaging quality by eliminating solvent in deposition

Potential Commercial Applications

- Mass Spectrometry Imaging in Biomedical Applications
- Film Growth
- Surface Modification
- Molecular Printing

Background/Context for This Invention

Mass spectrometry is an analytical technique becoming increasingly important in bioscience research. This technique allows for molecules of a sample to be ionized, converted from the solid phase to the gas phase through heating and analyzed to determine the sample's chemical composition. Mass spectrometry works best when a sample is coated with a substrate to allow for better quality of imaging. Currently, there are two generally used methods for sample coating, spraying and spotting, however, both of these methods use a solvent to deliver the substrate, which reduces the resolution of images.

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More Information

U.S. Patent Issued - [7,880,139](#)

Publications

For more information about this technology, please visit:

<https://licensing.research.gatech.edu/technology/method-imaging-mass-spectrometry>

Images: