

# A simple method for creating a mass spectrometer that is preferentially sensitive to one or more compounds of interest

## Value Proposition

Mass spectrometers are used for all kinds of chemical analyses, ranging from environmental analysis to the analysis of petroleum products, trace metals and biological materials. Therefore, much of the utility associated with conventional mass spectroscopy results from its generality and versatility. That is the ability to identify a wide variety of ions and samples from which they are derived. However, not all applications require such generality, versatility, and the resulting cost as measured in both instrument complexity and monetary expense. Accordingly, compound specific mass spectrometry, while reducing the cost and complexity of mass spectrometers are needed.

## Technology

Duke inventors have developed a simple method for creating a mass spectrometer that is preferentially sensitive to one or more compounds of interest. This is intended to be used for applications including security screening of explosives, WMD or illicit drugs and environmental monitoring of pollutants, industrial contaminants, or household chemicals. While mass spectrometers offer no compound-specific physics, the inventors have introduced codes that can filter in a compound-specific manner. In particular, it is a mask interposed between an ion source and a detector structure that advantageously directs all compound-identifying ion fragments to a single detector element.

## Advantages

- Can be used to preferentially detect one or more compounds of interest with mass spectrometry
- The simple detector structure results in reduced cost, size, weight and power of the instrument
- This mass spectrometer design is particularly well-suited for security screening and environmental monitoring applications

# Duke

## LICENSING & VENTURES

### Duke File (IDF) #

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### Links

- [From the lab of Dr. Jason Amsden](#)
- [From the lab of Dr. Jeffrey Glass](#)
- [From the lab of Dr. Michael Gehm](#)
- [From the lab of Dr. Charles Parker](#)

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## Publications

- [Issued US Patent 10,410,850](#)

## Patents

Patent Number: 10,410,850

Title: SYSTEMS, METHODS AND STRUCTURES FOR  
COMPOUND-SPECIFIC CODING MASS SPECTROMETRY

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