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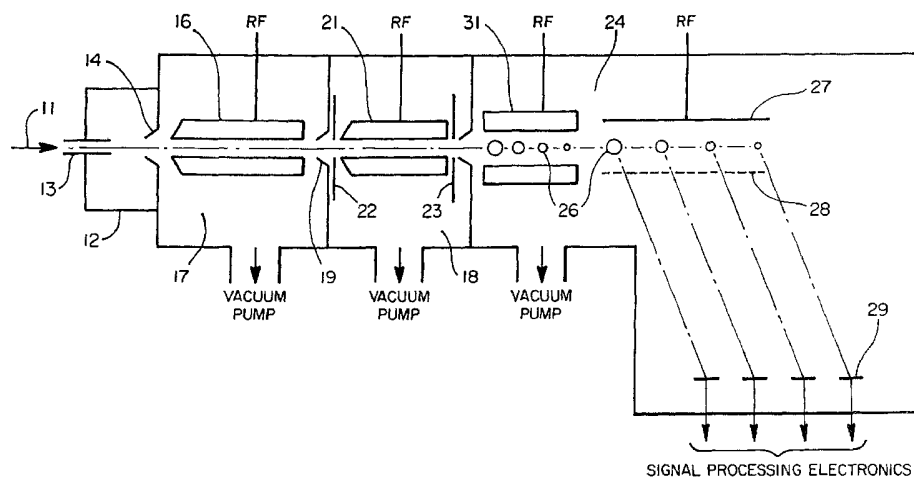
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[Continued on next page]

(54) Title: DISTANCE OF FLIGHT SPECTROMETER FOR MS AND SIMULTANEOUS SCANLESS MS/MS



(57) Abstract: A distance of flight (DOF) approach to mass spectroscopy in which the resolution among the various ion masses is accomplished in space rather than time. A separate detector is associated with each ion mass resolution element. The DOF mass spectrometer can serve as one element in a tandem arrangement, which has the capability to produce a full two-dimensional precursor/product spectrum for each bunch of ions extracted from the source. A "distance-of-flight" (DOF) mass analyzer, having an ion storage device (21) means for applying an ion extraction voltage pulse to said storage device (22, 23), a field free region, and detectors (29), is used in combination with time-of-flight (TOF) mass analysis for precursor and product dispersion. All the precursor ions can undergo a mass changing reaction simultaneously, while still retaining the essential information about the particular precursor  $m/z$  value from which each product  $m/z$  value emanated. Through the use of a two-dimensional detector, all the products ions from all the precursors can be detected for each batch of ions analyzed.

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**B. FIELDS SEARCHED**

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Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)  
 EAST

**C. DOCUMENTS CONSIDERED TO BE RELEVANT**

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X, P	US 6,586,727 B2 (Bateman et al) 1 July 2003, See entire document	1-37
X	US 2001/0052569 A1 (Bateman et al) 20 December 2001, See Entire Document	1-12, 14-17, 19,35-37
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Y		13, 18, 20-34
Y, A	US 6,507,019 B2 (Chernushevich et al) 14 January 2003, See Entire Document	1-37
Y, A	US 6,331,702 B1 (Krutchinsky et al) 18 December 2001, See Entire Document	1-37
Y, A	US 6,285,027 B1 (Chernushevich et al) 4 September 2001, See Entire Document	1-37

Further documents are listed in the continuation of Box C.

See patent family annex.

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