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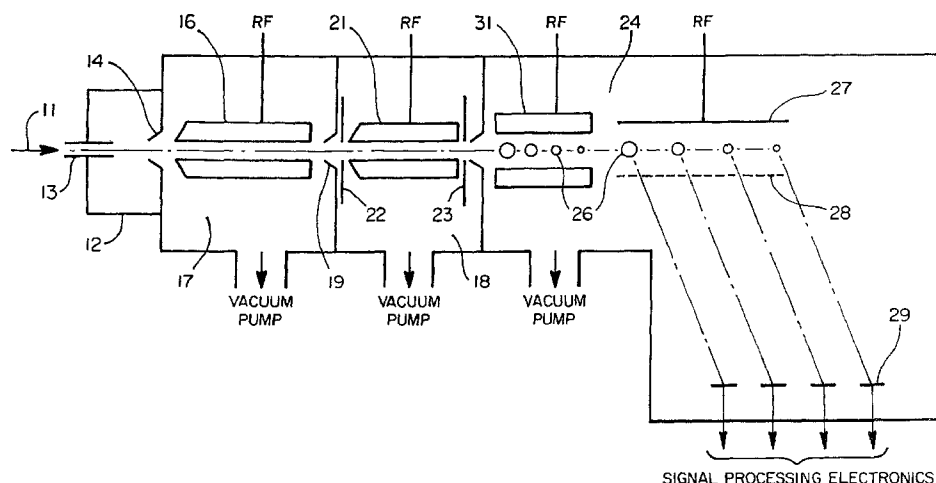
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[Continued on next page]

(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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