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(54) Title: DIGITAL WAVEFORM MANIPULATIONS TO PRODUCE MS^n COLLISION INDUCED DISSOCIATION

(57) Abstract: A novel method and mass spectrometer apparatus is introduced to enable collision induced dissociation inside linear ion traps/guides or 3D ion traps based on digital waveform manipulation. In particular, using the device's digitally produced trapping waveforms to trap, isolate and energize the ions of interest creates a simplified and versatile ion trap/guide that is capable tandem mass spectrometry and high sensitivity. Coupling the digitally operated ion trap/guides to a TOF creates a Q-TOF instrument that outperforms any commercial system in terms of sensitivity and capabilities.

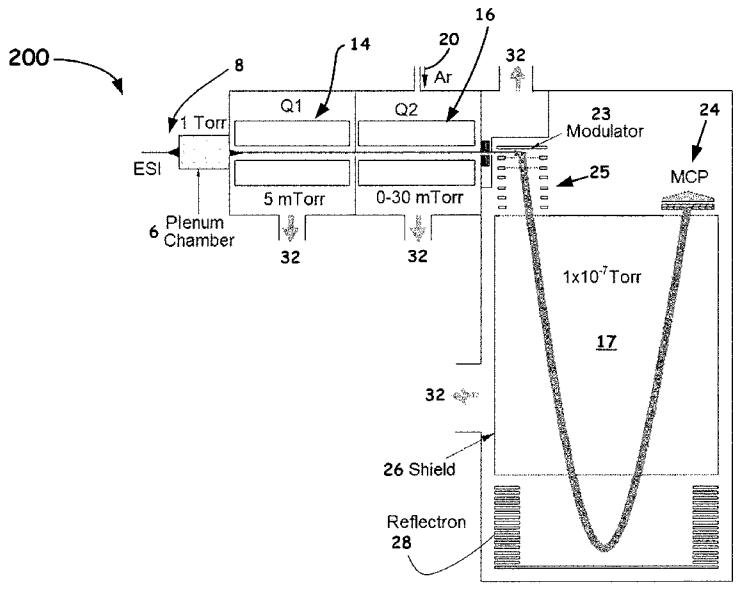

FIG. 2

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