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- (d) adjusting the height of the electric field barrier so that ions are collected in the ion guide;
- (e) stopping generation of the ions;
- (f) lowering the height of the electric field barrier; and
- (g) measuring an ion current of ions pushed over the lowered electric field barrier by the gas jet to directly measure the ion mobility.

14. The method of claim 13, wherein step (g) comprises acquiring a series of mass spectra as the height of the field barrier is lowered in step (f), and extracting mobility spectra of ions of individual mass ranges without differentiation from the series of mass spectra.

15. The method of claim 14, further comprising:

- (h) examining the mobility spectra extracted in step (g) to select ions with predetermined mobilities; and
- (i) acquiring fragment ion spectra of the selected ions.

16. The method of claim 6, wherein step (a) comprises supplying a continuous current of ions from an ion source, and wherein the method further comprises:

- (d) varying the height of the electric field barrier;
- (e) measuring the ion current of the first group of ions as a function of the height of the field barrier; and
- (f) differentiating the ion current with respect to the height of the field barrier to generate a mobility spectrum.

17. The method of claim 16, wherein step (e) comprises acquiring a series of mass spectra and extracting ion current curves for ions of individual mass ranges from the mass spectra, and wherein step (f) comprises differentiating the ion current curves to generate mobility spectra.

18. The method of claim 16, wherein the gas in which the ions are entrained has a temperature and wherein the method further comprises:

- (g) changing the temperature; and

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(h) acquiring mobility spectra at various gas temperatures to determine conformational changes of the ions.

19. An ion mobility spectrometer, comprising:

- an ion source that entrains ions in a gas flow;
- a differential pumping system, transporting the gas flow and ions through a plurality of sequential pumping chambers;
- a nozzle having an exit and being located in a wall between two of the pumping chambers, so that the gas flow passes through the nozzle and generates a gas jet with ions at the nozzle exit;
- a device for generating adjacent to the nozzle exit an electric field barrier having an adjustable height; and
- an ion detector that measures a current of ions that are pushed over the electric field barrier by the gas jet.

20. An ion mobility spectrometer, comprising:

- an ion source that entrains ions in a gas flow;
- a differential pumping system, transporting the gas flow and ions through a plurality of sequential pumping chambers;
- a nozzle having an exit and being located in a wall between two of the pumping chambers, so that the gas flow passes through the nozzle and generates a gas jet with ions at the nozzle exit;
- an ion guide having an entrance located at the nozzle exit and an exit, the ion guide maintaining and redirecting ions into the gas jet;
- a device for generating adjacent to the ion guide exit an electric field barrier having an adjustable height; and
- an ion detector that measures a current of ions that are pushed over the electric field barrier by the gas jet.

21. The ion mobility spectrometer of claim 20, wherein the ion detector comprises a mass spectrometer.

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