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- charge ratio having kinetic energies less than said particular kinetic energy from passing to step d); and
 d) mass filtering the ions passed by step c) and detecting those of said ions having said given mass-to-charge ratio.
2. A method as claimed in claim 1 wherein said particular kinetic energy varies with the mass-to-charge ratio and the cut-off energy in step c) is varied to correspond to the energy of the atomic ions of interest.
3. A method as claimed in claim 2 wherein said mass filtering step d) is arranged to permit the continuous detection of ions of said given mass-to-charge ratio.
4. A method as claimed in claim 3 wherein said mass filtering is carried out using a quadrupole mass analyzer.
5. A method as claimed in claim 2 wherein said mass filtering step d) is arranged to permit the sequential detection of ions having a range of mass-to-charge ratios and said energy filtering step is arranged to prevent the passage to step d) of molecular ions of approximately each of said mass-to-charge ratios having energies lower than said particular energy at each of said mass-to-charge ratios.
6. A method as claimed in claim 5 wherein said mass filtering is carried out using a quadrupole mass analyzer.
7. A method as claimed in claim 5 wherein said mass filtering is carried out using a magnetic sector analyzer.
8. A method as claimed in claim 7 wherein said energy filtering is carried out using a retarding grid.
9. A method as claimed in claim 7 wherein said energy filtering is carried out using a cylindrical mirror analyzer.
10. A method as claimed in claim 3 wherein said mass filtering is carried out using a magnetic sector analyzer.

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11. A method as claimed in claim 10 wherein said energy filtering is carried out using a retarding grid.
12. A method as claimed in claim 10 wherein said energy filtering is carried out using a cylindrical mirror analyzer.
13. A method as claimed in claim 2 wherein said energy filtering is carried out using an arrangement of electrically charged parallel plates.
14. A method as claimed in claim 1 wherein said mass filtering step d) is arranged to permit the continuous detection of ions of said given mass-to-charge ratio.
15. A method as claimed in claim 1 wherein said mass filtering step d) is arranged to permit the sequential detection of ions having a range of mass-to-charge ratios and said energy filtering step is arranged to prevent the passage to step d) of molecular ions of approximately each of said mass-to-charge ratios having energies lower than said particular energy at each of said mass-to-charge ratios.
16. A method as claimed in claim 1 wherein said mass filtering is carried out using a quadrupole mass analyzer.
17. A method as claimed in claim 1 wherein said mass filtering is carried out using a magnetic sector analyzer.
18. A method as claimed in claim 1 wherein said energy filtering is carried out using a retarding grid.
19. A method as claimed in claim 1 wherein said energy filtering is carried out using a cylindrical mirror analyzer.
20. A method as claimed in claim 1 wherein said energy filtering is carried out using an arrangement of electrically charged parallel plates.

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