12. An apparatus of claim **1**, comprising two sets of said curved electrodes, wherein one set delivers ions to said at least one substantially planar DMS analyzer and the other set receives ions from that analyzer.

13. An apparatus of claim **12**, wherein the number of said DMS analyzers is two.

14. An apparatus of claim **1**, wherein the gap width between said curved electrodes substantially equals the distance between said DMS analyzer electrodes and said waveform applied to said curved electrodes substantially matches that used in said DMS analyzer.

15. An apparatus of claim **1**, wherein at least one of said curved electrodes is contiguous with at least one of said DMS analyzer electrodes.

16. An apparatus of claim **15**, wherein one of said curved electrodes is contiguous with one of said DMS analyzer electrodes and the other of said curved electrodes is contiguous with the other of said DMS analyzer electrodes, such that the same waveform is loaded simultaneously on said curved electrodes and said DMS analyzer electrodes coupled thereto.

17. An apparatus of claim **1**, wherein said curved electrodes are cylindrical segments produced by resection of an angular arc from two coaxial cylinders and positioned such that the cylindrical axis is parallel to the plane of said DMS analyzer and the annular gap median is substantially coincident with the median of the gap of said DMS analyzer at the point of closest proximity between said curved electrodes and said DMS analyzer electrodes.

18. An apparatus of claim **17**, wherein the span of said angular arc is between 0 degrees and about 270 degrees.

19. An apparatus of claim **17**, wherein the span of said angular arc is between about 30 and about 180 degrees.

20. An apparatus of claim **17**, wherein the span of said angular arc is about 90^0.

21. An apparatus of claim **17**, wherein the radius of said annular gap median is between about 1 mm and about 100 mm.

22. An apparatus of claim **17**, wherein the radius of said annular gap median is between about 3 mm and about 30 mm.

23. An apparatus of claim **1**, wherein the gap width between said curved electrodes is between about 0.2 mm and about 10 mm.

24. An apparatus of claim **1**, wherein the gap width between said curved electrodes is between about 0.4 mm and 5 mm.

25. A method for improved interfacing of a differential mobility spectrometry (DMS) analyzer having substantially planar electrodes to other stages, comprising the steps:

providing at least two curved electrodes with a gap therebetween filled with a gas, carrying a periodic asymmetric waveform and a dc compensation voltage that jointly establish spatially inhomogeneous electric field in said gap that focuses ions before and/or after said DMS stage toward the median of said gap; and

wherein the range of DMS separation parameters selected substantially includes that set by operation of said DMS analyzer such that ions are focused to said gap median without significant losses, creating a thinner ion beam more completely transmitted through apertures of limited size leading to said other stages and/or more effectively injected into said DMS analyzer.

26. A method of claim **25**, wherein said DMS analyzer operates on the principles of field asymmetric waveform ion mobility spectrometry (FAIMS).

27. A method of claim **25**, wherein said DMS analyzer operates on the principles of higher-order differential ion mobility spectrometry (HODIMS).

28. A method of claim **25**, wherein ions are driven through said gap between said curved electrodes by flow of said gas.

29. A method of claim **25**, wherein ions are driven through said gap between said curved electrodes by a component of electric field directed along said gap.

30. A method of claim **25**, wherein one set of said curved electrodes receives ions from at least two different DMS analyzers.

31. A method of claim **25**, wherein one set of said curved electrodes delivers ions to at least two different DMS analyzers.

32. A method of claim **25**, wherein one set of said curved electrodes delivers ions to said at least one DMS analyzer and another set of said curved electrodes receives ions from that analyzer.

33. A method of claim **25**, wherein the gap width between said curved electrodes substantially equals the distance between said DMS analyzer electrodes and said waveform applied to said curved electrodes substantially matches that used in said DMS analyzer.

34. A method of claim **25**, wherein at least one of the said curved electrodes is contiguous with at least one of said DMS analyzer electrodes.

35. A method of claim **34**, wherein one of the said curved electrodes is contiguous with one of the said DMS analyzer electrodes and the other of the said curved electrodes is contiguous with the other of the said DMS analyzer electrodes, such that the same waveform is loaded simultaneously on said curved electrodes and said DMS analyzer electrodes coupled thereto.

36. A method of claim **25**, wherein said curved electrodes are cylindrical segments produced by resection of an angular arc from two coaxial cylinders and positioned such that the cylindrical axis is parallel to the plane of said DMS analyzer and the annular gap median is substantially coincident with the median of the gap of said DMS analyzer at the point of closest proximity between said curved electrodes and said DMS analyzer electrodes.

37. A method of claim **36**, wherein the span of said angular arc is between 0 degrees and about 270 degrees.

38. A method of claim **36**, wherein the span of said angular arc is between about 30 degrees and about 180 degrees.

39. A method of claim **36**, wherein the span of said angular arc is about 90^0.

40. A method of claim **36**, wherein the radius of said annular gap median is between about 1 mm and about 100 mm.

41. A method of claim **36**, wherein the radius of said annular gap median is between about 3 mm and about 30 mm.

42. A method of claim **25**, wherein the gap width between said curved electrodes is between about 0.2 mm and about 10 mm.

43. A method of claim **25**, wherein the gap width between said curved electrodes is between about 0.4 mm and about 5 mm.

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