70. The method of claim 69 wherein said combination essentially consists of serially applying the periodic field focusing and the hyperbolic field focusing.

71. An apparatus for performing ion mobility spectrometry comprising:

an ionization source;

a drift cell to receive ions from said ionization source and having a parallel electrode assembly comprising components selected from the group consisting of at least one field correcting ring electrode and at least one movable cylindrical electrode; and,

an ion detector to receive and detect ions from said drift cell.

72. The apparatus of claim 71 wherein said ionization source is a matrix assisted laser desorption ionization source.

73. The apparatus of claim 71 wherein said ionization source is selected from the group consisting of an electrospray ionization apparatus, a laser ionization apparatus, a photoionization apparatus, an electron ionization apparatus, a chemical ionization apparatus, an electric field ionization apparatus, a surface ionization apparatus, a radioactive ionization apparatus, a discharge ionization apparatus; and, a multiphoton ionization apparatus.

74. The apparatus of claim 71 wherein said ion detector is selected from the group consisting of an ion collector with an amplifier, and a mass spectrometer.

75. The apparatus of claim 74 wherein said ion detector is a time-of-flight mass spectrometer.

76. The apparatus of claim 75 wherein the axis defined by said drift cell is perpendicular to the axis defined by said flight tube of the time-of-flight mass spectrometer.

77. The apparatus of claim 75 wherein said time-of-flight ion source comprises a collision-induced dissociation apparatus.

78. The apparatus of claim 75 wherein said time-of-flight ion source comprises a surface-induced dissociation apparatus.

79. The apparatus of claim 75 wherein said time-of-flight ion source comprises a photo-induced dissociation apparatus.

80. The apparatus of claim 71 further comprising a microchannel aperture plate between said drift cell and said ion detector.

81. The apparatus of claim 80 wherein said microchannel aperture plate comprises a bundle of capillaries.

82. The apparatus of claim 71 further comprising a radio frequency focusing interface between said drift cell and said ion detector.

83. The apparatus of claim 82 wherein said radio frequency focusing interface comprises a combination of a radio frequency electric field and a direct current electric field.

84. An apparatus for performing ion mobility spectrometry comprising:

an ionization source;

a drift cell to receive ions from said ionization source and having a parallel electrode assembly comprising at least one radius of curvature electrode; and,

an ion detector to receive and detect ions from said drift cell.

85. The apparatus of claim 84 wherein said ionization source is a matrix assisted laser desorption ionization source.

86. The apparatus of claim 84 wherein said ionization source is selected from the group consisting of an electrospray ionization apparatus, a laser ionization apparatus, a photoionization apparatus, an electron ionization apparatus, a chemical ionization apparatus, an electric field ionization apparatus, a surface ionization apparatus, a radioactive ionization apparatus, a discharge ionization apparatus; and, a multiphoton ionization apparatus.

87. The apparatus of claim 84 wherein said ion detector is selected from the group consisting of an ion collector with an amplifier, and a mass spectrometer.

88. The apparatus of claim 87 wherein said ion detector is a time-of-flight mass spectrometer.

89. The apparatus of claim 88 wherein the axis defined by said drift cell is perpendicular to the axis defined by said flight tube of the time-of-flight mass spectrometer.

90. The apparatus of claim 89 wherein said time-of-flight ion source comprises a collision-induced dissociation apparatus.

91. The apparatus of claim 89 wherein said time-of-flight ion source comprises a surface-induced dissociation apparatus.

92. The apparatus of claim 89 wherein said time-of-flight ion source comprises a photo-induced dissociation apparatus.

93. The apparatus of claim 84 further comprising a microchannel aperture plate between said drift cell and said ion detector.

94. The apparatus of claim 93 wherein said microchannel aperture plate comprises a bundle of capillaries.

95. The apparatus of claim 84 further comprising a radio frequency focusing interface between said drift cell and said ion detector.

96. The apparatus of claim 95 wherein said radio frequency focusing interface comprises a combination of a radio frequency electric field and a direct current electric field.

97. A method of collecting ion mobility spectrometric information comprising:

generating a gaseous sample of ions using a technique selected from the group consisting of:

matrix assisted laser desorption ionization, electrospray ionization, laser ionization, photoionization, an electron ionization, chemical ionization, electric field ionization, surface ionization, radioactive ionization, discharge ionization; and, multiphoton ionization,

separating said gaseous sample of ions into packets of ions according to the ion mobilities of said packets through use of a drift cell having a parallel electrode assembly comprising components selected from the group consisting of at least one field correcting ring electrode and at least one movable cylindrical electrode; and,

detecting said ion packets.

98. The method of claim 97 wherein said step of detecting ion packets comprises the use of and ion collector and an amplifier.