

APPARATUSES, SYSTEMS, AND METHODS FOR ION TRAPS

ABSTRACT

5 An ion trap apparatus is provided. The ion trap apparatus comprises two or more radio
frequency (RF) rails formed with substantially parallel longitudinal axes and with
substantially coplanar upper surfaces; and two or more sequences of trapping and/or transport
(TT) electrodes with each sequence formed to extend substantially parallel to the
substantially parallel longitudinal axes of the RF rails. The two or more RF rails and the two
10 or more sequences of TT electrodes define an ion trap. The two or more sequences of TT
electrodes are arranged into a number of zones. Each zone comprises wide matched groups of
TT electrodes and at least one narrow matched group of TT electrodes. A wide TT electrode
is longer and/or wider in a direction substantially parallel to the substantially parallel
longitudinal axes of the RF rails than a narrow TT electrode.

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[Figure 1]