

System, Method and Apparatus for Coordinating Pressure Pulses and RF Modulation in a Small Volume Confined Process Reactor

ABSTRACT

A plasma processing system and method includes a processing chamber, and a plasma processing volume included therein. The plasma processing volume having a volume less than the processing chamber. The plasma processing volume being defined by a top electrode, a substrate support surface opposing the surface of the top electrode and a plasma confinement structure including at least one outlet port. A conductance control structure is movably disposed proximate to the at least one outlet port and capable of controlling an outlet flow through the at least one outlet port between a first flow rate and a second flow rate, wherein the conductance control structure controls the outlet flow rate and an at least one RF source is modulated and at least one process gas flow rate is modulated corresponding to a selected processing state set by the controller during a plasma process.

FIG. 2A