

CLAIMS

1. A plasma system comprising:
a controller configured to generate a signal indicating a tuning parameter associated with a measurable factor, wherein the measurable factor is used to process a substrate when present within a plasma chamber; and
a filter in communication with the controller for changing an impedance of a portion of a radio frequency (RF) supply path based on the tuning parameter, wherein the portion of the RF supply is between an impedance matching circuit and an electrode of the plasma chamber, wherein the filter is coupled to the portion of the RF supply path, wherein the filter is directly coupled to an RF strap and the RF strap is directly coupled to the portion of the RF supply path.
2. The plasma system of claim 1, wherein one end of the filter is coupled to the RF strap and another end of the filter is coupled to ground.
3. The plasma system of claim 1, wherein the filter includes a variable capacitor, or a variable inductor, or a combination thereof.
4. The plasma system of claim 1, wherein the RF supply path is located between an RF generator and the electrode, wherein the RF supply path extends via an RF cable, the impedance matching circuit, an RF connection coupled to the impedance matching circuit, an RF rod coupled to the RF connection, and an RF cylinder coupled to the RF rod, wherein the RF cable couples the RF generator to the impedance matching circuit.
5. The plasma system of claim 1, wherein the tuning parameter is a capacitance of the filter or an inductance of the filter.
6. The plasma system of claim 1, wherein the process is of etching the substrate or of depositing materials on the substrate, wherein the electrode is a lower electrode of the plasma chamber.
7. The plasma system of claim 1, wherein the RF strap has an internal inductance.

8. The plasma system of claim 1, wherein the RF strap is directly coupled to a connection point on an RF cylinder located within a plasma reactor, wherein the plasma reactor includes the plasma chamber.
9. A method comprising:
generating a signal indicating a tuning parameter associated with a measurable factor, wherein the measurable factor is used to process a substrate when present within a plasma chamber; and
changing an impedance of a portion of a radio frequency (RF) supply path based on the tuning parameter, wherein the portion of the RF supply path is between an impedance matching circuit and an electrode of the plasma chamber, wherein said changing the impedance is performed by changing the tuning parameter of a filter coupled to the portion of the RF supply path, wherein the filter is directly coupled to an RF strap and the RF strap is directly coupled to the portion of the RF supply path.
10. The method of claim 9, wherein one end of the filter is coupled to the RF strap and another end of the filter is coupled to ground.
11. The method of claim 9, wherein the filter includes a variable capacitor, or a variable inductor, or a combination thereof.
12. The method of claim 9, wherein the RF supply path is located between an RF generator and the electrode, wherein the RF supply path extends via an RF cable, the impedance matching circuit, an RF connection coupled to the impedance matching circuit, an RF rod coupled to the RF connection, and an RF cylinder coupled to the RF rod, wherein the RF cable couples the RF generator to the impedance matching circuit.
13. The method of claim 9, wherein the tuning parameter is a capacitance of the filter or an inductance of the filter.
14. The method of claim 9, wherein the measurable factor is an etch rate of etching the substrate, or a deposition rate of depositing materials on the substrate, or a uniformity in the etch rate, or a uniformity in the deposition rate.

15. The method of claim 9, wherein the process is of etching the substrate or of depositing materials on the substrate, wherein the electrode is a lower electrode of the plasma chamber.
16. The method of claim 9, further comprising:
generating a drive signal upon receiving the tuning parameter, wherein said generating the drive signal is performed to operate a motor to change the tuning parameter.
17. A plasma system comprising:
a controller configured to generate a signal indicating a tuning parameter associated with a measurable factor, wherein the measurable factor is used to process a substrate when present within a plasma chamber;
a driver coupled to the controller for receiving the tuning parameter, wherein the driver is configured to generate a drive signal upon receiving the tuning parameter;
a movement mechanism coupled to the driver for receiving the drive signal and configured to perform a motion based on the drive signal; and
a filter coupled to the movement mechanism for changing an impedance of a portion of a radio frequency (RF) supply path in response to the motion, wherein the portion of the RF supply path is between an impedance matching circuit and an electrode of the plasma chamber, wherein the filter is coupled to the portion of the RF supply path, wherein the filter is directly coupled to an RF strap and the RF strap is directly coupled to the portion of the RF supply path.
18. The plasma system of claim 17, wherein one end of the filter is coupled to the RF strap and another end of the filter is coupled to ground.
19. The plasma system of claim 17, wherein the filter includes a variable capacitor, or a variable inductor, or a combination thereof.
20. The plasma system of claim 17, wherein the RF supply path is located between an RF generator and the electrode, wherein the RF supply path extends via an RF cable, the impedance matching circuit, an RF connection coupled to the impedance matching circuit, an RF rod coupled to the RF connection, and an RF cylinder coupled to the RF rod, wherein the RF cable couples the RF generator to the impedance matching circuit.