CLAIMS

1. A substrate support assembly for positioning in a semiconductor processing chamber, comprising:

a substrate support having a first electrode and a second electrode, at least part of the second electrode disposed outwardly of the first electrode; and

a circuit coupled to the first electrode and the second electrode, the circuit comprising:

a lead coupled to the first electrode,

a first capacitor between the lead and a second lead coupled to the second electrode, and

a sensor operable to monitor power to the first electrode and the second electrode.

2. The substrate support assembly of claim 1, wherein

the second electrode circumferentially surrounds the first electrode, and

the second electrode has a surface area that is greater than a surface area of the first electrode.

3. The substrate support assembly of claim 1, further comprising one or more power sources, wherein the circuit is coupled between the one or more power sources and the first and second electrodes, the one or more power sources are operable to input a power signal to the circuit, and the power signal is radio frequency (RF) power at a fixed frequency.

4. The substrate support assembly of claim 1, wherein the sensor is between the lead and the second lead.

5. The substrate support assembly of claim 1, wherein the sensor is disposed in parallel with the first capacitor.

6. The substrate support assembly of claim 1, wherein

the first capacitor is a fixed capacitor,

the circuit further comprises a second capacitor coupled to ground,

the second capacitor is between the first capacitor and ground, and

the second capacitor is a variable capacitor.

7. The substrate support assembly of claim 1, wherein the substrate support includes a pedestal, and the second electrode partially overlaps the first electrode.

8. A substrate support assembly for positioning in a semiconductor processing chamber, comprising:

a substrate support having a first electrode and a second electrode, at least part of the second electrode disposed outwardly of the first electrode; and

a circuit coupled to the first electrode and the second electrode, the circuit comprising:

a first capacitor coupled to the first electrode, and

a second capacitor coupled to the second electrode.

9. The substrate support assembly of claim 8, wherein the circuit further comprises:

a sensor operable to monitor power to the first electrode and the second electrode, wherein the sensor is disposed in parallel with the first capacitor.

10. The substrate support assembly of claim 8, wherein

the first capacitor is a fixed capacitor,

the circuit further comprises a third capacitor coupled to ground,

the third capacitor is a variable capacitor, and

the third capacitor is between the first capacitor and ground.

11. The substrate support assembly of claim 8, wherein the second capacitor is disposed in parallel with the first capacitor.

12. The substrate support assembly of claim 8, wherein the second electrode circumferentially surrounds the first electrode, the first capacitor is coupled to the first electrode through a first rod, and the second capacitor is coupled to the second electrode through a second rod.

13. The substrate support assembly of claim 8, further comprising one or more power sources, wherein the circuit is coupled between the one or more power sources and the first and second electrodes, the one or more power sources are operable to input a power signal to the circuit, and the power signal is radiofrequency (RF) power at a fixed frequency.

14. A method for controlling a plasma, the method comprising:

providing a power signal to a circuit coupled to a first electrode and a second electrode disposed in a substrate support;

dividing the power signal to:

the first electrode through a lead, and

the second electrode through a first capacitor;

monitoring one or more parameters of the first electrode and the second electrode; and

adjusting the plasma based on the one or more monitored parameters.

15. The method of claim 14, wherein

the power signal to the first electrode is divided to a second capacitor, and

the second capacitor is disposed in parallel with the first capacitor.