CLAIMS

1. An apparatus, for use in a processing chamber, comprising:

an edge ring within the processing chamber; and

a piezo transducer, wherein the piezo transducer is configured to act as a scale positioned to measure a mass of the edge ring and an actuator arranged to raise and lower the edge ring based on the mass as measured by the scale, wherein the piezo transducer outputs a measured current or voltage indicative of the mass of the edge ring, and wherein an applied current or voltage input to the piezo transducer causes movement of the actuator to raise and lower the edge ring.

2. The apparatus, as recited in claim 1, further comprising a controller electrically connected to the scale.

3. The apparatus, as recited in claim 1, further comprising:

a controller electrically connected to the piezo transducer,

wherein the controller comprises:

at least one CPU; and

non-transitory computer readable media electrically connected to the at least one CPU, wherein the computer readable media, comprises:

non-transitory computer readable code for measuring a voltage or current from the piezo transducer;

non-transitory computer readable code for determining an applied voltage or current from the measured voltage or current; and

non-transitory computer readable code for applying the determined applied voltage or current across the piezo transducer, to raise and lower the edge ring within the processing chamber.

4. The apparatus, as recited in claim 1, wherein the processing chamber is a plasma processing chamber.

5. The apparatus, as recited in claim 1, wherein the scale further comprises tangible computer readable media, comprising:

computer readable code for measuring a voltage from the piezo transducer; and

computer readable code for using the measured voltage as a mass indicator.

6. The apparatus, as recited in claim 5, wherein the actuator further comprises tangible computer readable media, comprising:

computer readable code for determining an applied voltage; and

computer readable code for applying the determined applied voltage across the piezo transducer.

7. An apparatus, comprising:

a plasma processing chamber;

an edge ring within the processing chamber;

a piezo transducer positioned to measure a mass of the edge ring and act as an actuator for moving the edge ring;

a controller electrically connected to the piezo transducer, wherein the controller comprises:

at least one CPU; and

non-transitory computer readable media electrically connected to the at least one CPU, wherein the computer readable media, comprises:

non-transitory computer readable code for measuring a voltage or current from the piezo transducer;

non-transitory computer readable code for determining an applied voltage or current from the measured voltage or current; and

non-transitory computer readable code for applying the determined applied voltage or current across the piezo transducer to raise and lower the edge ring within the processing chamber.