

~~What is claimed is:~~

Claims

- 1.——_A method for substrate processing, comprising:
generating a plasma in a first process chamber while a substrate is positioned therein;
——generating a fingerprint comprising reflected power of the plasma of the substrate based on a plurality of sensors in the first process chamber;
comparing the fingerprint to a plurality of stored fingerprint models to determine if the substrate is deformed; ~~and~~
determining, based on the comparison of the fingerprint to the plurality of stored fingerprint models, that the substrate is deformed; and
selecting, based on ~~a~~the determination that the substrate is deformed, a substrate processing program for chucking the substrate to correct the substrate deformation.
- 2.——_The method of claim 1, further comprising:
executing the selected substrate processing program in the first process chamber; and
correcting, in response to executing the selected substrate processing program, the substrate deformation.
- 3.——_The method of claim 2, further comprising:
subsequent to correcting the substrate deformation, transferring the substrate to a second process chamber, the second process chamber being coupled to the first process chamber via a transfer chamber; and
performing a second operation in the second process chamber.
- 4.——_The method of claim 1, further comprising:
——transferring the substrate to a second process chamber;
——executing the selected substrate processing program in the second process chamber; and
correcting, in response to executing the selected substrate processing program, the substrate deformation.
5. —The method of claim 1, wherein the plurality of sensors is configured to detect a low-frequency or a high-frequency reflected power.
6. —The method of claim 1, wherein the substrate deformation is one of a compressive bow or a tensile bow ~~and each fingerprint model is associated with a compressive bow or a tensile bow.~~

7.— The method of claim 1, wherein each fingerprint model is associated with a compressive bow or a tensile bow.

8. The method of claim 1, wherein the plasma is generated from one or more of argon (Ar), helium (He), krypton (Kr), or xenon (Xe).

9. A method for substrate processing, comprising:

generating a plasma in a first process chamber;

generating a fingerprint of a substrate positioned in the first process chamber;

the fingerprint comprising reflected power of the plasma;

comparing the fingerprint to a plurality of stored fingerprint models, wherein each fingerprint model is associated with a type of bow deformation of the substrate; and

selecting/determining, based on the comparing/comparison of the fingerprint to the plurality of stored fingerprint models, that the substrate is deformed; and

selecting a substrate processing program for the substrate to correct a substrate bow deformation.

8.— 10. The method of claim 79, further comprising the fingerprint being generated based on a plurality of sensors in the first process chamber configured to detect a low-frequency or a high-frequency reflected power to determine the substrate bow deformation.

9.— 11. The method of claim 710, further comprising:

executing the selected substrate processing program in the first process chamber; and

correcting, in response to executing the selected substrate processing program, the substrate bow deformation.

40.— 12. The method of claim 711, further comprising: subsequent to correcting the substrate deformation, performing a second operation in the second process chamber.

13. The method of claim 12, wherein the second operation comprises deposition, etching, or cleaning.

14. The method of claim 9, further comprising:

transferring the substrate to a second process chamber;

—disposing the substrate on a substrate support in the second process chamber;

executing the selected substrate processing program in the second process chamber; and

correcting, in response to executing the selected substrate processing program, the substrate bow deformation.

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~~11.~~ The method of claim 10, further comprising:

~~subsequent to correcting the substrate bow, performing a second operation in the second process chamber, wherein the second operation comprises deposition, etching, or cleaning.~~

42.—A computer-readable storage medium configured to execute instructions to cause a system to:

generate a plasma in a first process chamber, a substrate being positioned in the first process chamber;

——generate a fingerprint of the substrate comprising reflected power of the plasma, based on a plurality of sensors in the first process chamber, the plurality of sensors being configured to detect a low-frequency or a high-frequency reflected power;

compare the fingerprint to a plurality of stored fingerprint models to determine if the substrate is deformed; and

determine, based on the comparison of the fingerprint to the plurality of stored fingerprint models, that the substrate is deformed; and

select, based on athe determination that the substrate is deformed, a substrate processing program for the substrate to correct substrate deformation.

43.—~~16.~~ The computer-readable storage medium of claim ~~42~~15, further comprising the system being configured to:

execute the selected substrate processing program in the first process chamber; and

correct, in response to executing the selected substrate processing program, the substrate deformation.

44.—~~17.~~ The computer-readable storage medium of claim ~~42~~15, further comprising the system being configured to:

transfer the substrate to a second process chamber;

——position the substrate on a substrate support in the second process chamber;

execute the selected substrate processing program in the second process chamber; and

correct, in response to executing the selected substrate processing program, the substrate deformation.

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18. The computer-readable storage medium of claim ~~42~~15, wherein the substrate deformation is one of a compressive bow or a tensile bow.

19. The computer-readable storage medium of claim 15, wherein each fingerprint model is associated with a compressive bow or a tensile bow.

20. The computer-readable storage medium of claim 15, wherein the plasma is generated from one or more of argon (Ar), helium (He), krypton (Kr), or xenon (Xe).