CLAIMS

1. A method of semiconductor processing comprising:

forming a plasma of a carbon-containing precursor in a processing region of a semiconductor processing chamber;

depositing a carbon-containing material on a substrate housed in the processing region of the semiconductor processing chamber;

halting a flow of the carbon-containing precursor into the processing region of the semiconductor processing chamber;

contacting the carbon-containing material with an oxidizing material in the semiconductor processing chamber; and

treating a surface of the carbon-containing material.

2. The method of semiconductor processing of claim 1, wherein treating the surface of the carbon-containing material comprises:

forming a plasma of the oxidizing material in the processing region of the semiconductor processing chamber;

contacting the carbon-containing material with plasma effluents of the oxidizing material; and

forming volatile materials from a surface of the carbon-containing material.

3. A method of semiconductor processing comprising:

forming a plasma of one or more deposition precursors in a processing region of a semiconductor processing chamber;

depositing a material on a substrate housed in the processing region of the semiconductor processing chamber;

halting a flow of at least one of the one or more deposition precursors into the processing region of the semiconductor processing chamber;

contacting the material deposited on the substrate with plasma effluents of an oxidizing material; and

forming volatile materials from a surface of the material deposited on the substrate.

4. The method of semiconductor processing of claim 3, wherein the material deposited on the substrate comprises one or more of amorphous carbon, doped carbon, or a silicon-containing material.

5. The method of semiconductor processing of claim 3, wherein the oxidizing material comprises an oxygen-containing precursor or a fluorine-containing precursor.

6. The method of semiconductor processing of claim 3, wherein the plasma effluents of the oxidizing material are formed in the processing region of the semiconductor processing chamber, and wherein the plasma effluents are generated at a plasma power of less than or about 500 W.

7. The method of semiconductor processing of claim 3, wherein contacting the material deposited on the substrate with plasma effluents of the oxidizing material causes a surface of the material deposited on the substrate to become negatively charged.

8. The method of semiconductor processing of claim 3, wherein contacting the material deposited on the substrate with plasma effluents of the oxidizing material is performed for less than or about 30 seconds.

9. The method of semiconductor processing of claim 3, wherein a carrier gas is included as one of the one or more deposition precursors, wherein a flow of the carrier gas is maintained while contacting the material deposited on the substrate with plasma effluents of the oxidizing material, and wherein a plasma is sustained between depositing the material on the substrate and contacting the material with plasma effluents of the oxidizing material.

10. A method of semiconductor processing comprising:

forming a plasma of a carbon-containing precursor in a processing region of a semiconductor processing chamber;

depositing a carbon-containing material on a substrate housed in the processing region of the semiconductor processing chamber;

halting a flow of the carbon-containing precursor into the processing region of the semiconductor processing chamber;

contacting the carbon-containing material with plasma effluents of an oxidizing material; and

forming volatile materials from a surface of the carbon-containing material.

11. The method of semiconductor processing of claim 10, wherein the oxidizing material comprises an oxygen-containing precursor or a fluorine-containing precursor.

12. The method of semiconductor processing of claim 10, wherein the plasma effluents of the oxidizing material are formed in a remote plasma unit fluidly coupled with the processing region of the semiconductor processing chamber.

13. The method of semiconductor processing of claim 10, wherein a temperature of the semiconductor processing chamber is maintained at greater than or about 400° C during the method.

14. The method of semiconductor processing of claim 10, wherein contacting the carbon-containing material with plasma effluents of the oxidizing material causes a surface of the carbon-containing material to become negatively charged.

15. The method of semiconductor processing of claim 10, wherein contacting the carbon-containing material with plasma effluents of the oxidizing material is performed for less than or about 30 seconds.

16. The method of semiconductor processing of claim 10, wherein contacting the carbon-containing material with plasma effluents of the oxidizing material is performed in the semiconductor processing chamber directly subsequent to the carbon-containing material being deposited on the substrate.

17. The method of semiconductor processing of claim 10, wherein the plasma effluents of the oxidizing material are formed in the processing region of the semiconductor processing chamber.

18. The method of semiconductor processing of claim 17, wherein the plasma effluents are generated at a plasma power of less than or about 200 W.

19. The method of semiconductor processing of claim 10, wherein a carrier gas is flowed with the carbon-containing precursor, and wherein a flow of the carrier gas is maintained while contacting the carbon-containing material with plasma effluents of the oxidizing material.

20. The method of semiconductor processing of claim 19, wherein a plasma is sustained between depositing the carbon-containing material and contacting the carbon-containing material with plasma effluents of the oxidizing material.