WHAT IS CLAIMED IS:

1. A reaction chamber of a semiconductor process device, applied to a plasma enhanced atomic layer deposition process, comprising: a monitoring module, a deposition module, and a control module connected to the monitoring module; wherein,

the deposition module is configured to execute multiple deposition steps within a deposition period, each of the multiple deposition steps comprising: introducing a precursor into the reaction chamber and applying a radio frequency electric field to the reaction chamber so as to form a plasma light source in the reaction chamber, and depositing a target film layer on a work piece to be processed through the plasma light source;

the monitoring module is configured to monitor brightness of the plasma light source in the reaction chamber when the deposition module executes each deposition step, and generate a first signal according to the brightness of the plasma light source; and

the control module is configured to judge whether a thickness of the target film layer deposited through the deposition module is abnormal according to the first signal generated in at least one of the deposition steps, and if yes, send an abnormality alerting signal, thereby performing a compensation operation.

2. The reaction chamber according to claim 1, wherein the control module is further configured to, when it is judged that the thickness of the target film layer is abnormal, control the deposition module to complementally execute at least one of the deposition steps.

3. The reaction chamber according to claim 1, wherein the control module is configured to:

judge whether a plasma ignition abnormality occurs when the radio frequency electric field is applied by the deposition module, according to the first signal generated in at least one of the deposition steps, and if yes, determine that the thickness of the target film layer is abnormal.

4. The reaction chamber according to claim 3, wherein the monitoring module comprises a photoresistor or a photosensitive diode, and the first signal is a voltage signal negatively correlated with the brightness of the plasma light source in the reaction chamber.

5. The reaction chamber according to claim 4, wherein the control module comprises: a processing submodule and a control submodule, and the monitoring module and the control submodule are both connected with the processing submodule;

the processing submodule is configured to judge whether the first signal exceeds a preset range, and if yes, generate a second signal; and

the control submodule is configured to count the number of times of generating, by the processing submodule, the second signal within the deposition period, and when the number of times of generating, by the processing submodule, the second signal within the deposition period is greater than 0, determine that the plasma ignition abnormality occurs when the radio frequency electric field is applied.

6. The reaction chamber according to claim 5, wherein the deposition module is connected with the control submodule,

the control submodule is further configured to control the deposition module to complementally execute at least one of the deposition steps according to the number of times of generating, by the processing submodule, the second signal within the deposition period, when the number of times of generating, by the processing submodule, the second signal within the deposition period is greater than 0.

7. The reaction chamber according to claim 6, wherein the number of times of complementally executing, by the deposition module, the deposition step is the same as the number of times of generating, by the processing submodule, the second signal within the deposition period.

8. The reaction chamber according to claim 1, wherein a monitoring opening is formed in a side wall of the reaction chamber, the monitoring module is located outside the reaction chamber, and the monitoring module monitors the brightness of the plasma light source in the reaction chamber through the monitoring opening.

9. The reaction chamber according to claim 8, wherein a support base for bearing the work piece to be processed is arranged in the reaction chamber, the deposition module comprises an upper electrode arranged at a top of the reaction chamber and a lower electrode arranged in the support base, the upper electrode and the lower electrode are configured to apply the radio frequency electric field in response to a driving signal, and the monitoring opening is located between the lower electrode and the upper electrode.

10. A semiconductor process device, comprising the reaction chamber according to any one of claims 1-9.

11. A film layer deposition method, applied to the reaction chamber of the semiconductor process device according to any one of claims 1-9, and comprising:

executing multiple deposition steps within a deposition period, each of the multiple deposition steps comprising: introducing a precursor into the reaction chamber and applying a radio frequency electric field to the reaction chamber so as to form a plasma light source in the

reaction chamber, and depositing a target film layer on a work piece to be processed through the plasma light source;

when each deposition step is executed, monitoring brightness of the plasma light source in the reaction chamber, and generating a first signal according to the brightness of the plasma light source; and

judging, according to the first signal generated in at least one of the deposition steps, whether a thickness of the deposited target film layer is abnormal, and if yes, sending an abnormality alerting signal.

12. The film layer deposition method according to claim 11, further comprising:

complementally executing at least one of the deposition steps when the thickness of the target film layer is abnormal.