

ABSTRACT

The present invention discloses a thin film deposition apparatus, comprising a process chamber, for performing thin film deposition; a gas supply assembly, disposed on the top wall of the process chamber, for supplying process gas to the inside of the process chamber; a heating tray, disposed below the gas supply assembly, for carrying and heating a substrate; an upper electrode and a lower electrode, for forming a uniform electric field within the process chamber; a radio frequency source, connected to the upper electrode and the lower electrode for providing radio frequency power, exciting process gas inside the process chamber to dissociate into plasma gas, and the plasma gas performing thin film deposition on the substrate. Wherein, the sizes of the upper electrode and the lower electrode are the same or different by $\pm 10\text{mm}$, and the diameter of the lower electrode is smaller than the diameter of the substrate, and the uniform electric field is generated between the upper electrode and the lower electrode. The present invention can ensure that the electric field in the process chamber is uniformly distributed, and the deposited thin film has good uniformity, especially in a continuous stack of more than 300 or even 1000 layers, can also ensure the uniformity of the thin film.