



US 20230230803A1

(19) **United States**(12) **Patent Application Publication**  
**MAO et al.**(10) **Pub. No.: US 2023/0230803 A1**(43) **Pub. Date: Jul. 20, 2023**(54) **SEMICONDUCTOR REACTION CHAMBER****Publication Classification**(71) Applicant: **BEIJING NAURA  
MICROELECTRONICS  
EQUIPMENT CO., LTD.**, Beijing  
(CN)(51) **Int. Cl.**  
**H01J 37/32** (2006.01)  
**H01J 65/04** (2006.01)  
**H01J 37/22** (2006.01)  
(52) **U.S. Cl.**  
CPC ..... **H01J 37/32119** (2013.01); **H01J 65/044**  
(2013.01); **H01J 37/22** (2013.01); **H01J**  
**21/0273** (2013.01)(72) Inventors: **Xingfei MAO**, Beijing (CN); **Gang  
WEI**, Beijing (CN); **Wei WANG**,  
Beijing (CN); **Guodong CHEN**, Beijing  
(CN)(21) Appl. No.: **18/190,930**(22) Filed: **Mar. 27, 2023****Related U.S. Application Data**(63) Continuation of application No. PCT/CN2021/  
119560, filed on Sep. 22, 2021.(30) **Foreign Application Priority Data**

Sep. 27, 2020 (CN) ..... 202011032583.8

(57) **ABSTRACT**

A semiconductor reaction chamber includes a chamber body, a dielectric window, a gas inlet member, a carrier, an upper radio frequency assembly, and a plurality of ultraviolet light generation devices. The dielectric window is arranged at a top of the chamber body. The gas inlet member is arranged at a center position of the dielectric window and configured to introduce a process gas into the chamber body. The carrier is arranged inside the chamber body and configured to carry a to-be-processed wafer. The upper radio frequency assembly is arranged above the chamber body and configured to ionize the process gas introduced into the chamber body to generate a plasma and first ultraviolet light. The plurality of ultraviolet light generation devices is arranged between the dielectric window and the carrier and around the gas inlet member and configured to generate second ultraviolet light radiating toward the carrier.

