

PLASMA PROCESSING APPARATUS AND PLASMA PROCESSING METHOD**ABSTRACT**

A plasma processing apparatus includes a dielectric member having communication holes through which an internal space communicates with a processing space; a first electrode and a second electrode arranged to face each other with the internal space therebetween; a first gas supply device which supplies a first processing gas into the internal space; a first high frequency power supply which supplies a first high frequency power to at least one of the first electrode and the second electrode to generate a first plasma of the first processing gas; a depressurizing device which introduces the first processing gas and radicals in the first plasma into the processing space; a second high frequency power supply which supplies a second high frequency power to generate a second plasma of the first processing gas and to attract ions into a target object; and a control unit which adjusts, by controlling a total amount of the first high frequency powers, an amount of the radicals in the second plasma and adjusts, by controlling a ratio between the first high frequency powers, an amount of the ions in the second plasma.

Fig. 1