

Abstract Submitted
for the GEC06 Meeting of
The American Physical Society

Optical emission CT of etching plasmas for an effect of the anode phase of LF-bias voltage in a 2f-CCP in Ar and CF₄/Ar MIKIO ISHIMARU, TAKESHI OHMORI, Keio University, TAKESHI KITAJIMA, National Defense Academy, TOSHIAKI MAKABE, Keio University — It is essential to control and optimize 2-dimensional ion flux distribution modulated by strong sheath dynamics in front of an oxide wafer deeply biased by a low frequency source in a 2f-CCP etcher. In our previous work, we have estimated the effect of the secondary electron from the wafer at the cathodic phase of the low frequency bias voltage on the functional separation in the 2f-CCP. In the present work, we discuss a temporal profile of low energy electrons of the anodic phase of the bias by using 2D-t OES system. The profile of the net excitation rate of Ar(2p₉) is still observed in the sheath region at the anodic phase of the wafer, although the net rate of Ar(2p₁) as a probe of high energy electrons is very weak. These results may be supposed that the majority part of the signal of Ar(2p₉) will be caused by the reaction between the low energy electron and Ar metastable atom. We will perform a measurement of the absolute density of Ar metastables by using LAS to identify the effect of low energy electrons in the 2f-CCP.

[1] T. Akaike, T. Ohmori, T. Makabe, et al, 58th-GEC (San Jose; 2005).

Mikio Ishimaru
Keio University

Date submitted: 16 Jun 2006

Electronic form version 1.4