

Abstract Submitted  
for the GEC08 Meeting of  
The American Physical Society

**Deposition of single and layered amorphous fluorocarbon films by  $C_8F_{18}$  PECVD** TATSUYA YAMAUCHI, KOUICHIRO MIZUNO, HIROTAKE SUGAWARA, Hokkaido University — Amorphous fluorocarbon films were deposited by plasma-enhanced chemical vapor deposition (PECVD) using  $C_8F_{18}$  in closed system at  $C_8F_{18}$  pressures 0.1–0.3 Torr, deposition times 1–30 min and plasma powers 20–200 W. The layered films were composed by repeated PECVD processes. We compared ‘two-layered’ and ‘intermittently deposited’ films, which were made by the PECVD, respectively, with and without renewal of the gas after the deposition of the first layer. The interlayer boundary was observed in the layered films, and that of the intermittently deposited films showed a tendency to be clearer when the deposition time until the interruption of the PECVD was shorter. The film thickness increased linearly in the beginning of the PECVD and it turned down after 10–15 min, that was similar between the single and intermittently deposited films. It was considered that large precursors made at a low decomposition degree of  $C_8F_{18}$  contributed to the film deposition in the early phase and that the downturn was due to the development of the  $C_8F_{18}$  decomposition. This explanation on the deposition mechanism agrees qualitatively with our experimental data of pressure change and optical emission spectra during the deposition. This work is supported by Grant-in-Aid from Japan Society for the Promotion of Science.

Tatsuya Yamauchi  
Hokkaido University

Date submitted: 13 Jun 2008

Electronic form version 1.4