Abstract Submitted
for the GEC10 Meeting of
The American Physical Society

Infrared spectroscopic study on substrate bias effects on amorphous carbon deposition process during acetylene plasma[1] MASANORI SHINOHARA, TAKA-AKI KAWAKAMI, KOJIRO HARA, Graduate School of Sci. and Technol., Nagasaki Univ., YOSHINOBU MATSUDA, Dep. of EEE, Nagasaki Univ., HIROSHI FUJIYAMA, Graduate School of Sci. and Technol., Nagasaki Univ., YUKI NITTA, TATSUYUKI NAKATANI, TOYO a-tec — An amorphous carbon film has been widely used in many fields, because of its useful property. In these days, the requirements to the film became sever. Then, the film deposition process should be controlled in an atomic level. There are a lot of process parameters for film deposition. One of the important parameters is substrate bias. The ions generated in plasma play an important role in film deposition. However, the detailed mechanism has not understood. Then, we investigate the deposition process and substrate bias effects with infrared spectroscopy in multiple internal reflection geometry (MIR-IRAS). We will show the substrate bias effects on film deposition process in this presentation; hydrogen ions drawn with substrate bias etched the polymer components, while the hydrocarbon ions drawn with substrate bias contribute to the film deposition.

[1]Supported by a Grant-in-Aid for Young Scientists (A), and a Grant-in-Aid for Scientific Research on Innovative Areas from MEXT of Japan.

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Date submitted: 09 Jun 2010 Electronic form version 1.4