Abstract Submitted
for the GEC10 Meeting of
The American Physical Society

Energy Flux onto a Substrate during ICP Assisted Sputter-Deposition[1] YOSHINOBU MATSUDA, HIROAKI KITAGAWA, KENJI MINE, MASANORI SHINOHARA, Nagasaki University — Energy flux onto a substrate has been measured with different thermal probes (TPs) by many researchers in the RF plasma, RF magnetron plasma, and DC glow discharge plasma in the past. However, no measurement of the energy flux onto the substrate during the ICP assisted sputtering has been done as far as we know so far. Therefore, we have measured the energy flux onto the substrate during the ICP assisted sputtering by using a temperature equilibrium type TP that operates with a time constant about 100s. The energy flux was proportional to the target power in a pure planar magnetron, and it was proportional to the ICP power in a pure ICP. However, the energy flux in the ICP assisted sputtering is not a simple addition of the energy flux in the pure planar magnetron and that in the pure ICP; i.e., the energy flux in the ICP assisted sputtering is predominantly determined by the ICP power. The energy flux measured with the thermal probe was in good agreement with the calculated results, which were based on the model proposed by Kersten et al.

[1]a Grant-in-Aid for Scientific Research (C) and Special Coordination Funds for Promoting Science and Technology from MEXT of Japan.

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Date submitted: 10 Jun 2010 Electronic form version 1.4