Abstract Submitted
for the GEC10 Meeting of
The American Physical Society

Behaviour of Hybrid PVD-PECVD Process in Comparison with Conventional Reactive Magnetron Sputtering TEREZA SCHMIDTOVA, PETR VASINA, Masaryk University, Brno, Czech Republic, DEPARTMENT OF PHYSICAL ELECTRONICS TEAM — Hybrid PVD-PECVD sputtering process was studied in comparison with conventional reactive magnetron sputtering. Ti target was sputtered in nitrogen and oxygen atmosphere for conventional reactive sputtering and in acetylene and methane for hybrid process. The hybrid PVD-PECVD combines aspects of both processes: conventional sputtering of metal target but source of carbon is hydrocarbon vapour. In conventional reactive sputtering, oxygen/nitrogen is consumed on all surfaces of deposition chamber and forms oxides/nitrides of sputtered metal. Due to difference between sputtering yields of pure metal and metal oxide/nitride process suffers with hysteresis. For hybrid process, hydrocarbon vapour in plasma decompose into fragments that are capable of attaching to surfaces without presence of metal atom and amorphous hydrogenated carbon layers can be formed. We report differences in behaviour of these processes, discuss necessary time for hybrid process to achieve steady state conditions and suggest modification of model for reactive magnetron sputtering to predict behaviour of hybrid process.

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Date submitted: 12 Jun 2010 Electronic form version 1.4