SESSION 6a: PROCESS I –PLASMA PROCESSING

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Papers in this section focus on improving the manufacturing performance of plasma deposition and etch processes used in compound semiconductor manufacturing. The first paper of the session by RF Micro Devices discusses optimization of an *in-situ* clean used in conjunction with a plasma enhanced chemical vapor deposition (PECVD) process. Recipe changes applied to the *in-situ* clean process improved both tool up time as well as stabilizing wafer deposition uniformities between cleans. The second paper in the session from Global Communication Semiconductors also looks at improvements to a PECVD process. This paper correlates PECVD silicon nitride (SiN) film properties to metal-insulator-metal (MIM) capacitor performance. The paper also discusses improvements that more than doubled the process capability (Cpk) of the deposition. The last paper of the session, by Skyworks Solutions, examines damage mechanisms from plasma etching thin films on gallium arsenide (GaAs). The Skyworks work uses electrical measurements of a Schottky diode structure to explore the damage responses of typical plasma recipe parameters. The paper also examines post-process approaches that can be used to mitigate plasma induced damage downstream of the etch.