

**Plenary Lectures
(Invited)**

PL1

Surface science aspects of thin amorphous film growth

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The study of the growth mechanism of thin amorphous films during plasma enhanced chemical vapour deposition, requires the simultaneous study of both the plasma state as well as the nature of the thin film surface during growth. Since the growth under these non-equilibrium growth conditions is kinetic in nature, identification of the various radicals and ions by means of a variety plasma diagnostics is needed.

In this presentation I will discuss the progress we made in the understanding of the fast deposition of hydrogenated amorphous silicon and carbon and siliconoxide like films. The talk will emphasize the importance of plasma phase diagnostics such as cavity ring down spectroscopy and appearance potential mass spectrometry for radical detection. Furthermore the combination of the information obtained from these studies with in situ film diagnostics such as IR attenuated total internal reflection absorption spectroscopy and spectroscopic ellipsometry to characterize the physical and chemical state of the film surface will be highlighted.