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M. TAMME, R. KAMILLI, P. PADUSCHEK, P. MONTGOMERY and
S. ILLSLEY

*PLASMOS GmbH, Prozesstechnik, Tegernseer Landstrasse 161,
D-8000 Munich 90, Germany*

Abstract - In situ ellipsometry enables "on line" continuous monitoring of film development within the deposition chamber. Furthermore in situ ellipsometry not only provides thickness monitoring, but is an excellent tool for determining refractive index and absorption coefficients. Advantages and disadvantages of in situ ellipsometry are shown and compared with other techniques. Examples of transparent PECVD film growth are shown as well as an example of a-Si as a highly absorbing film.