

Abstract Submitted
for the SES08 Meeting of
The American Physical Society

Multimedia ellipsometry of (aminomethylaminoethyl)phenethyltrimethoxysilane (PEDA) layers JEREMY PETERS, HANS HALLEN, NC State University — A novel ellipsometric characterization method is described for determining the layer thickness and refractive index of substrates functionalized using (aminomethylaminoethyl)phenethyltrimethoxysilane (PEDA) self assembled monolayers (SAMs). Since traditional ellipsometry cannot independently determine the thickness and index of very thin layers, we have developed an ellipsometric apparatus that measures films in liquid solvents, and an analysis procedure that combines the separate three-layer models in these solvent media to enable measurement of both values. Two types of ellipsometry analysis procedures are shown. We illustrate an analysis of thin layer deposition on a simple substrate using PEDA on Si growth vs. time and solution. For more complex substrates, which require measurement before and after SAM layer growth, we show results for a PEDA/oxide/Si multilayer system. Since the refractive index of the layer is a function of the density of the molecules on the substrate, multimedia ellipsometry can determine whether the changes of the ellipsometric parameters are due to density or overgrowth effects.

Jeremy Peters
NC State University

Date submitted: 18 Aug 2008

Electronic form version 1.4