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[54] **ELLIPSOMETRIC CONTROL OF MATERIAL GROWTH**

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[52] **U.S. Cl.** **437/8**; 156/601; 356/369

[58] **Field of Search** 437/7, 8; 156/601; 356/369

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[57] **ABSTRACT**

A method and apparatus for controlling the growth of a multispecies film. During the film growth, an ellipsometer continuously monitors the surface on which the film is growing. The ellipsometer data is used to calculate the effective complex dielectric constant of the thin-film/substrate structure. A sequence of such data is used in a model calculation to determine the composition of the top portion of the thin film. The measured composition is compared with the target composition and the amount supplied of one of the species is correspondingly changed.

17 Claims, 8 Drawing Sheets