The Deposition of Structured Films of TiO_2 and Other Oxides and their Interaction with Compound Semiconductors

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Films of titania and other oxides are of interest in the fabrication for the photo-electrochemical solar cell, other solar cells and sensors. In this paper we report initial studied of the over coating of such films with compound semiconductor films and the binding of quantum dots to such films.

The fabrication of ordered arrays of rods of ZnO by chemical bath methods will be discussed. Substrate effects and effects of the growth of buffer layers on the morphology of layers grown by chemical bath techniques will be considered. These novel substrates and conventional doctors blade prepared highly porous layers of titania have been used as substrates for the overgrowth of other materials.

Layers have overgrown on to oxides by chemical bath deposition, and MOCVD will be compared. The effects of annealing have been studied. Films of cadmium and indium sulfide have been deposited.

The properties and potential for the application of such films are discussed.