

Overview of History and Present Trends of Chemical Bath Deposition

D. lincot*, G. Hodes**

*Laboratoire d'Electrochimie et de Chimie
Analytique (UMR CNRS 7575)
Ecole Nationale Supérieure de Chimie de
Paris
11 rue Pierre et Marie Curie
75231 Paris cedex 05, France

**Weizmann Institute of Science
Rehovot, 76100 Israel

Chemical Solution Deposition (CSD), also known as Chemical Bath Deposition (CBD), is the solution analogue of Chemical Vapor Deposition (CVD), widely used to prepare thin films for optoelectronic applications. CSD is based on precipitation or electroless processes in solutions. While the application of CSD for the growth of electronic materials has been known for a long time (e.g., PbS and PbSe for IR detectors), and deposition of numerous chalcogenide semiconductors has been demonstrated, its development has remained very limited until recently. In the last decade, there has been a renewed interest in this method, mainly associated with its remarkable success in depositing semiconductor layers in thin film photovoltaic cells. It is investigated also for passivation layers in optoelectronic devices, solar control coatings, epitaxial to nanocrystalline films and oxide deposition. CSD is thus emerging as a challenging research area, connected to self-organization concepts in liquid environments and bottom-up strategies.

In this presentation we will present this- more than 150 years- evolution on both historical and scientific points of view, with highlighting and discussing the most important issues.