

Chalcogenide Thin Films Prepared by Chemical Bath Deposition

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Nowadays, thin films have attracted a great attention in every corner of the world. The formation of thin films occurs as chalcogen ions react with metal ions, either acidic or basic solutions, through nucleation and particle growth in chemical bath deposition process. The films obtained have thicknesses that vary between a few nanometers to 100 μm .

Basically, there are three major groups of thin films processes, namely physical vapor deposition, chemical vapor deposition and chemical methods. For example, chemical bath deposition, electro deposition, pulsed laser deposition, vacuum evaporation, thermal evaporation, plasma enhanced chemical vapor deposition, sputter deposition, successive ionic layer adsorption and reaction can be used

to prepare various thin films. Among the above mentioned methods, chemical bath deposition has many advantages such as low cost, large area production, easily control of size and simplicity in instrumental operation.

As a conclusion, the development of binary, ternary and quaternary chalcogenide materials could be considered as promising candidates for applications such as photovoltaic cells, sensors, electroluminescent devices, electronic packaging, optical films and decorative coatings. In order to obtain chalcogenide materials with excellent performances, the properties of thin films should be optimized through research activities.

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