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Chalcogenide materials produced using chemical bath deposition method

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Chalcogenide materials are considered as good potential nano materials for the application of solar cells. Solar cells can be used to convert solar energy to electricity. Therefore, generate electricity using solar cells may contribute directly to green chemistry. At the present time, the cheapest deposition method such as chemical bath deposition has been used to deposit various chalcogenide materials onto glass substrate. For instance, ZnS, ZnSe, ZnTe, CuS, CuSe, SnSe, SnS and Cu_4SnS_4 , CdMnS, CuNiS, AgInS₂ are examples of binary and ternary compound, respectively. Nowadays, there are many equipment which are used in order to study the characterization of obtained samples. For example, X-ray diffraction was used to determine the crystallography of sample. Atomic force microscopy (AFM) and scanning electron microscopy (SEM) were employed to study the topography and morphology of samples. The grain size and the thickness will be determined using AFM and SEM as well. Meanwhile, Energy Dispersive Analysis of X-ray, attached to SEM equipment, is used to determine the percentage of element in samples. UV-Visible spectroscopy was employed to investigate the band gap energy and absorption behavior of samples. On the other hand, various deposition parameters have been investigated in order to determine the best deposition conditions to produce chalcogenide materials. Scientists realized that each of the deposition parameters will influence the obtained films. Normally, researchers will focus on pH, bath temperature, deposition time, solution concentration, and the concentration of complexing agent to achieve the mentioned objectives.

Biography

Ho Soonmin has completed his PhD from Universiti Putra Malaysia. Currently, he is Senior Lecturer at INTI International University, Malaysia. He has published more than 50 papers in reputed journals and has been serving as an editorial board member of reputed.

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