World Academy of Science, Engineering and Technology
International Journal of Materials and Metallurgical Engineering
Vol:9, No:05, 2015

Solar Cell Using Chemical Bath Deposited PbS:Bi3+ Films as Electron Collecting Layer

Authors : Melissa Chavez Portillo, Mauricio Pacio Castillo, Hector Juarez Santiesteban, Oscar Portillo Moreno

Abstract : Chemical bath deposited PbS:Bi3+ as an electron collection layer is introduced between the silicon wafer and the Ag electrode the performance of the PbS heterojunction thin film solar thin film solar cells with 1 cm2 active area. We employed Bi-doping to transform it into an n-type semiconductor. The experimental results reveal that the cell response parameters depend critically on the deposition procedures in terms of bath temperature, deposition time. The device achieves an open-circuit voltage of 0.4 V. The simple and low-cost deposition method of PbS:Bi3+ films is promising for the fabrication.

Keywords : Bi doping, PbS, thin films, solar cell
Conference Title : ICEMT 2015 : International Conference on Engineering Materials and Technology
Conference Location : Amsterdam, Netherlands
Conference Dates : May 14-15, 2015