World Academy of Science, Engineering and Technology
International Journal of Mathematical and Computational Sciences
Vol:14, No:12, 2020

Design of a Controlled BHJ Solar Cell Using Modified Organic Vapor Spray Deposition Technique

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Abstract : A comprehensive review of the literature on photovoltaic cells has been carried out for exploring the better options for cost efficient technologies for future solar cell applications. Literature review reveals that the Bulk Heterojunction (BHJ) Polymer Solar cells offer special opportunities as renewable energy resources. It is evident from the previous studies that the device fabricated with TiOx layer shows better power conversion efficiency than that of the device without TiOx layer. In this paper, authors designed a controlled BHJ solar cell using a modified organic vapor spray deposition technique facilitated with a vertical-moving gun named as 'Stephen Joe Technique' for getting a desirable surface pattern over the substrate to improving its efficiency over the years for industrial applications. We comprehended that the efficient processing and the interface engineering of these solar cells could increase the efficiency up to 5-10 %.

Keywords : BHJ polymer solar cell, photovoltaic cell, solar cell, Stephen Joe technique
Conference Title : ICSRD 2020 : International Conference on Scientific Research and Development
Conference Location : Chicago, United States
Conference Dates : December 12-13, 2020