

Effects of the Ambient Temperature and the Defect Density on the Performance the Solar Cell (HIT)

Authors : Bouzaki Mohammed Moustafa, Benyoucef Boumediene, Benouaz Tayeb, Benhamou Amina

Abstract : The ambient temperature and the defects density in the Hetero-junction with Intrinsic Thin layers solar cells (HIT) strongly influence their performances. In first part, we presented the bands diagram on the front/back simulated solar cell based on a-Si: H / c-Si (p)/a-Si:h. In another part, we modeled the following layers structure: ZnO/a-Si:H(n)/a-Si:H(i)/c-Si(p)/a-Si:H(p)/Ag where we studied the effect of the ambient temperature and the defects density in the gap of the crystalline silicon layer on the performance of the heterojunction solar cell with intrinsic layer (HIT).

Keywords : heterojunction solar cell, solar cell performance, bands diagram, ambient temperature, defect density

Conference Title : ICSRD 2020 : International Conference on Scientific Research and Development

Conference Location : Chicago, United States

Conference Dates : December 12-13, 2020