

Maximum Efficiency of the Photovoltaic Cells Using a Genetic Algorithm

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Abstract : The installation of photovoltaic systems is one of future sources to generate electricity without emitting pollutants. The photovoltaic cells used in these systems have demonstrated enormous efficiencies and advantages. Several researches have discussed the maximum efficiency of these technologies, but only a few experiences have succeeded to right weather conditions to get these results. In this paper, two types of cells were selected: crystalline and amorphous silicon. Using the method of genetic algorithm, the results show that for an ambient temperature of 25°C and direct irradiation of 625 W/m², the efficiency of crystalline silicon is 12% and 5% for amorphous silicon.

Keywords : PV, maximum efficiency, solar cell, genetic algorithm

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