

Five PV Model Parameters Determination Through PSO and Genetic Algorithm, a Comparative Study

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Description

The main goal of this paper is the application of PSO (Particle Swarm Optimization) and Genetic Algorithm (GA) in Renewable energy in general and particularly photovoltaics (PV) in order to extract the five parameters that governs the PV module (the photocurrent, the serial resistance, the saturation current, the parallel resistance and the ideality factor). Indeed, PSO and GA are intelligent post-analytic global optimization algorithms that give a minimal error. The application of these algorithms aimed at comparing the experimental results of a fairly well known photovoltaic module with is the MSX 60 has given good results. This is confirmed by the calculation of statistical performance measurement factors such as RMSE (root-mean-square error) and MAPE (mean absolute percentage error).