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MODELING AND SIMULATION OF A PHOTOVOLTAIC CELL CONSIDERING SINGLE-DIODE MODEL

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ABSTRACT

Solar energy is one of the most important types of renewable energies. Many models of solar cell had been proposed since the beginning of the solar energy exploitation. The present paper focuses on single-diode photovoltaic cell models. The I-V and P-V characteristics are presented for each model in function of the series resistance, the shunt resistance, the temperature and the irradiation. More than that, a comparison between an ideal model single-diode solar cell, a model of single-diode solar cell with a series resistance and a model of single-diode solar cell with series and shunt resistances is also presented. Different results were visualized and commented and a conclusion had been drawn.

KEYWORDS: PV Cell, Solar Energy, Single Diode, Modeling, I-V/P-V Characteristics, 1M3P, 1M4P, 1M5P