

Simulation of a photo-solar generator for an optimal output by a parabolic photovoltaic concentrator of Stirling engine type

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Abstract :

Solar energy is the source of the most promising energy and the powerful one among renewable energies. Photovoltaic electricity (statement) is obtained by direct transformation of the sunlight into electricity, by means of cells statement. Then, we study the operation of cells statement by the digital simulation with an aim of optimizing the output of the parabolic concentrator of Stirling engine type. The Greenius software makes it possible to carry out the digital simulation in 2D and 3D and to study the influence of the various parameters on the characteristic voltage under illumination of the cell. The results obtained enabled us to determine the extrinsic factors which depend on the environment and the intrinsic factors which result from the properties of materials used.

Keywords : photovoltaic cell; solar generator; simulation; optimization; concentrator photovoltaic; Stirling engine.

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