

(54) Title of the invention : SYSTEM AND METHOD FOR PARAMETER EXTRACTION OF FOUR-DIODE PHOTO-VOLTAIC CELL

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(57) Abstract :

The proposed system (100) optimizes the performance of a four-diode photovoltaic (PV) cell within a solar power system through iterative refinement and real-time monitoring. Initial development involves modeling the four-diode photo-voltaic cell with optimized parameters for efficient solar energy conversion. Subsequently, integration into the solar power system ensures seamless operation in tandem with other components. Utilizing advanced algorithms, the energy conversion module dynamically adjusts parameters to maximize energy conversion efficiency, while a remote monitoring and control mechanism enables real-time assessment and adjustment of the photo-voltaic cell's parameters. Furthermore, fault detection mechanisms within the photo-voltaic cell facilitate timely identification and resolution of system issues. The comprehensive approach enhances energy output and reliability, making the method a promising avenue for advancing solar power technology.

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