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## A quantum walk-based MPPT optimization algorithm for a stand-alone PV system

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**Abstract content &nbsp; (Max 300 words)<br><a href="http://events.saip.org.za/getFile.py/a" target="\_blank">Formatting &<br>Special chars</a>**

A novel quantum walk-based maximum power point tracking (MPPT) optimization algorithm for stand-alone photovoltaic (PV) system is proposed in this paper. A quantum walk is a quantization of a classical random walk algorithm. Since a classical random walk has proven to be a very powerful algorithmic tool, it is prudent then to investigate its quantum analogue, namely a quantum walk, for design of algorithms. The paper further provides a numerical analysis of the algorithm in order to determine its suitability as an MPPT optimization algorithm. Simulation results show that this quantum walk-based algorithm can quickly reach maximum power point (MPP), thereby reducing PV system power loss.

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No

**Level for award<br>&nbsp;(Hons, MSc, <br> &nbsp; PhD, N/A)?**

PhD

**Main supervisor (name and email)<br>and his / her institution**

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Yes

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