# A variable step-size MPPT technique based on a novel Convex-INC function for solar PV system

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**Abstract**

In this paper a novel convex-INC (CINC) function is presented. Based on CINC a variable step-size MPPT method has been proposed. The proposed algorithm is compared with state-of art MPPT techniques and found to be the fastest in tracking power with minimum oscillations in power during steady-state. Unlike many INC based techniques the proposed CINC function is weather invariant. Proposed algorithm is tested both on an ideal and buck converter. Testing is carried on MATLAB/Simulink. Moreover, dynamic efficiencies are evaluated on EN50530:2010 standard. The proposed algorithm exhibits dynamic efficiency of 99.9998%, which is the highest when compared with other state-of-art techniques.

Index Terms—Convex- Incremental conductance (CINC), Incremental conductance (INC), maximum power point (MPP) tracking (MPPT), photovoltaic (PV) power systems, variable step size.

**Biography**



Iqbal Azeem is a Lecturer in the Department of Electrical Engineering at NED University of Engineering and Technology, Pakistan. He received his Bachelors in Electrical Engineering and Masters in Electrical Power Systems from NED University in 2012 and 2015 respectively. His research interests include power electronics converters, AC-AC matrix and advances in renewable energy technologies.



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