

Article Proportional-resonant control of PV-fed cascaded boost-reboost inverter system

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November 2019 · 60(1_suppl):002072091988379

DOI: [10.1177/0020720919883799](https://doi.org/10.1177/0020720919883799)

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Abstract

Cascaded boost and reboost converter with inverter (CBRBIS) is a better choice to be considered in between PV source and DC load. This work proposes cascading of boost and reboost converter to increase the voltage gain. This paper deals with the combination of Maximum Power Point Tracking (MPPT) and voltage control using PI and PR controllers. This is done to improve the dynamic characteristics of CBRBCIS. Simulation is done for both open and closed loop CBRBIS using PIC and PRC. Simulated result obtained from the simulation reduces the total harmonic distortion of the output from the inverter by using PR controller instead of PI controller in the voltage control loop, and it maximizes the power obtained in the MPPT loop by using PR controller instead of PI controller. The hardware is powered up and tested. The simulated result is compared with the obtained hardware results. The novelty is to apply PR controller for CBRBI system to improve the dynamic response. The contribution is to combine MPPT and PR-based voltage control for CBRBIS.

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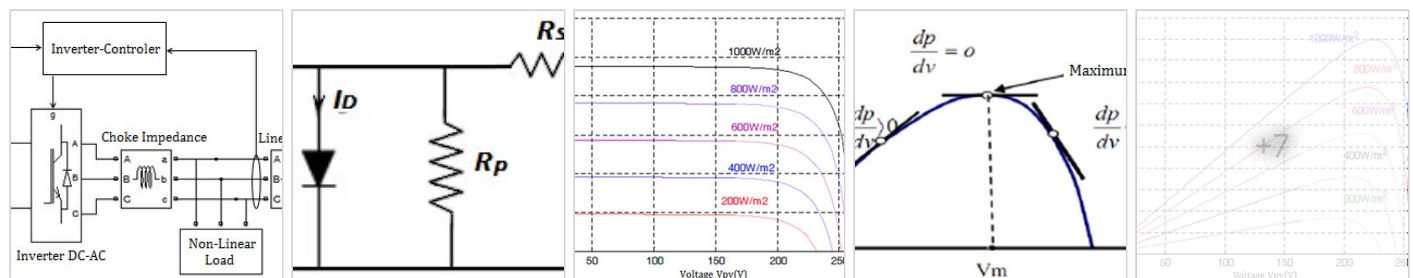
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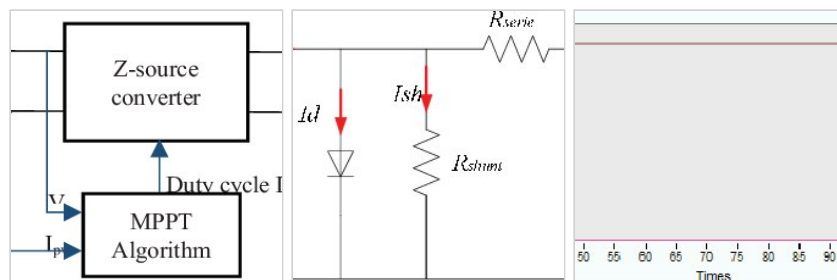
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