Title:	Performance Analysis of Boost Converter for Constant Voltage Applications Under the Variation of Closed-Loop PI Controller Parameters
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Abstract:

PI Controller is one of the eminent controller which holds majority of the applications in industrial purposes. This paper encompasses an analysis on the performance of PI controller for DC-DC Boost converter for constant voltage application where codifications of gains of PI controller are done in terms of natural frequency and damping factor. The converter has been designed to operate in continuous conduction mode and the voltage mode control strategy has been proposed by using pulse width modulation (PWM) with the PI controller. A set of gain parameters of PI controller can be selected to obtain the output of the PI controller with low rise time, quick settling time and also with more stability features. The effectiveness of this boost (or step up) converter with different set of PI controller gains has been verified through simulation where MATLAB/Simpower is used as the utensil. All the simulation results intrinsically emphasized on efficient performance of the proposed control strategy.

Keywords: Boost Converter; Duty Cycle; PI Controller; PWM Generator (DC-DC)