DC-DC intelligent power regulator design using wavelet neural network

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Abstract

DC-DC power converters are the devices which can convert a certain electrical voltage to another level of electrical voltage by switching action. This paper proposes a wavelet neural network control (WNNC) system for the DC-DC power converters. The WNNC system is comprised of a neural controller and a robust controller. The neural controller is used to mimic an ideal controller and the robust controller is designed to achieve tracking performance with desired attenuation level. Finally, some experimental results are provided to demonstrate the proposed WNNC system can track the output reference voltage variations and cope with the load resistance variations to ensure the stability while providing fast transient response.

Keyword：DC-DC power converters, wavelet neural network