



Shunt Active Power Filter Based Harmonics Compensation of a Low-Voltage Network Using Fuzzy Logic System

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Abstract: This paper presents the design of optimal fuzzy logic system, controlled a shunt active power filter (sAPF) for harmonics compensation which is injected by non-linear loads. This method is applied to a sAPF based on a three-phase voltage converter at two levels. The main contribution of this paper is the use of P-Q method for reference currents calculation by applying fuzzy logic for better active filter current control accuracy. For pulse generation, we use the PWM strategy. The results reflect clearly the effectiveness of the proposed APF to meet the IEEE-519 standard recommendations on harmonic levels. To validate the theoretical part, work simulations under Matlab-Simulink are provided.

Keywords: *fuzzy logic system; P-Q algorithm method; shunt Active Power Filter; Total Harmonic Distortion (THD).*

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