# Abstract

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### Fuzzy logic controlled shunt active power filter for three-phase four-wire systems with balanced and unbalanced loads

This paper presents a fuzzy logic controlled shunt active power filter used to compensate for harmonic distortion in three-phase four-wire systems. The shunt active filter employs a simple method for the calculation of the reference compensation current based of Fast Fourier Transform. This presented filter is able to operate in both balanced and unbalanced load conditions. A fuzzy logic based current controller strategy is used to regulate the filter current and hence ensure harmonic free supply current. The validity of the presented approach in harmonic mitigation is verified via simulation results of the proposed test system under different loading conditions.