**Adaptive notch filter under indirect and direct current controls for active power filter**

ABSTRACT

This study presents the implementation of adaptive notch filter (ANF) as reference signal extraction for shunt active power filter (APF) in indirect current control (ICC) and direct current control (DCC) modes for three phase system. The ANF functions to filter the signal that inputted to it by producing a fundamental signal and harmonics signal. The advantage of applying the ANF algorithm is based on its simple design that giving the ANF advantages to be utilize in microcontroller. The performance of the ANF is validated though MATLAB simulation in ICC dan DCC configurations. Based on the simulation results, the ANF is capable to work efficiently for both ICC and DCC modes, but in term of efficiency, the ICC mode is clearly showing a better harmonics mitigation result. Base on the result also it shown that the ANF is capable of mitigate the harmonics below the standard required by the IEEE 519-92. The application of ANF is useful to be applied due to its simple design and filtering method.