

# Harmonic Identification for Active Power Filters Via Adaptive Tabu Search Method

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**Abstract.** Harmonic identification by using Adaptive Tabu Search (ATS) Method embedded in the active power filter is proposed in this paper. The use of the ATS identifies harmonic components more accurately and precisely. Besides the accuracy and precision, it is able to select only some particular harmonic orders that cause severe consequences to the system for elimination. This principle thus leads to the reduction in size and cost of hardware implementation + active power filters. In this paper, two test current waveforms are simulated to validate and verify the performance of the proposed algorithm. The satisfactory results obtained by this identification method are also compared against those obtained by the d-q axis based harmonic identification method. As a result, the ATS based method has better performance for eliminating only selective harmonic orders over the d-q method. Furthermore, the compensated current from the proposed method has a good transient response while there is the first-cycle delay due to the use of the d-q method.