

Accepted Manuscript

Title: Minimizing Harmonic Distortion in Power System with Optimal Design of Hybrid Active Power Filter using Differential Evolution

Authors: Partha P. Biswas, P.N. Suganthan, Gehan A.J. Amaratunga



PII: S1568-4946(17)30513-6
DOI: <http://dx.doi.org/10.1016/j.asoc.2017.08.031>
Reference: ASOC 4421

To appear in: *Applied Soft Computing*

Received date: 11-1-2017
Revised date: 7-7-2017
Accepted date: 15-8-2017

Please cite this article as: Partha P.Biswas, P.N.Suganthan, Gehan A.J.Amaratunga, Minimizing Harmonic Distortion in Power System with Optimal Design of Hybrid Active Power Filter using Differential Evolution, Applied Soft Computing Journal <http://dx.doi.org/10.1016/j.asoc.2017.08.031>

This is a PDF file of an unedited manuscript that has been accepted for publication. As a service to our customers we are providing this early version of the manuscript. The manuscript will undergo copyediting, typesetting, and review of the resulting proof before it is published in its final form. Please note that during the production process errors may be discovered which could affect the content, and all legal disclaimers that apply to the journal pertain.

Minimizing Harmonic Distortion in Power System with Optimal Design of Hybrid Active Power Filter using L-SHADE Algorithm

Partha P Biswas¹, P. N. Suganthan¹, Gehan A J. Amaratunga²

¹School of Electrical and Electronic Engineering

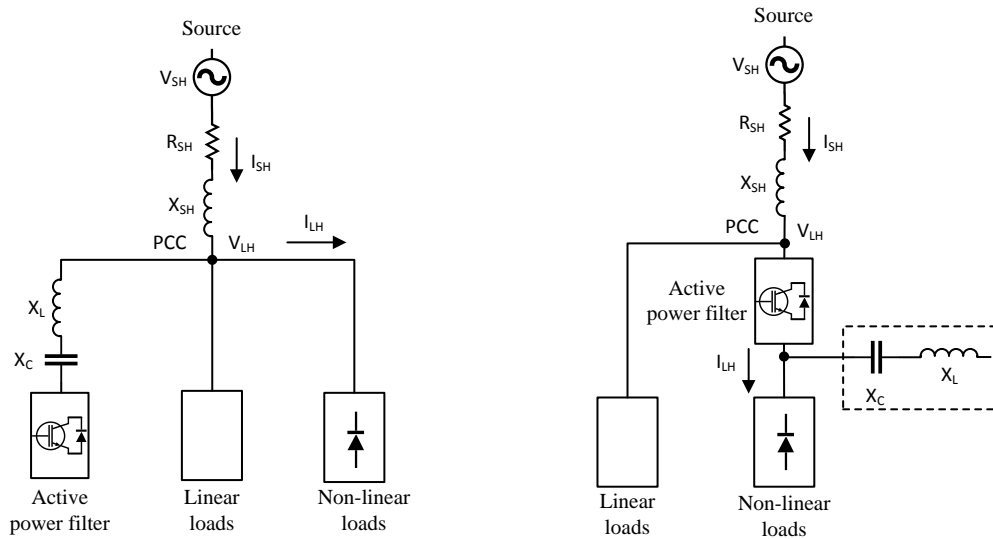
Nanyang Technological University, Singapore

parthapr001@e.ntu.edu.sg, epnsugan@ntu.edu.sg

²Department of Engineering, University of Cambridge, UK

gajal@hermes.cam.ac.uk

Graphical abstract



(a) Config.1: APF in series with shunt passive filter (b) Config.2: Combined series APF and shunt passive filter
 Circuit configurations of Hybrid Active Power Filter

HIGHLIGHTS:

- Two popular topologies of Hybrid Active Power Filter are analyzed.
- Non-linear load and source are considered for the system under study.
- Application of L-SHADE algorithm is described in detail.
- Active filter gain, passive filter reactances are optimized.
- Output results of L-SHADE are compared with other evolutionary algorithms.

Abstract: Hybrid active power filter (HAPF) is an advanced form of harmonic filter combining advantages of both active and passive filters. In HAPF, selection of active filter gain, passive inductive and capacitive reactances, while satisfying system constraints on individual and overall voltage and current harmonic distortion levels, is the main challenge. To optimize HAPF parameters, this paper proposes an approach based on differential evolution (DE) algorithm called L-SHADE. SHADE is the

متن کامل مقاله

دریافت فوری ←

ISIArticles

مرجع مقالات تخصصی ایران

- ✓ امکان دانلود نسخه تمام متن مقالات انگلیسی
- ✓ امکان دانلود نسخه ترجمه شده مقالات
- ✓ پذیرش سفارش ترجمه تخصصی
- ✓ امکان جستجو در آرشیو جامعی از صدها موضوع و هزاران مقاله
- ✓ امکان دانلود رایگان ۲ صفحه اول هر مقاله
- ✓ امکان پرداخت اینترنتی با کلیه کارت های عضو شتاب
- ✓ دانلود فوری مقاله پس از پرداخت آنلاین
- ✓ پشتیبانی کامل خرید با بهره مندی از سیستم هوشمند رهگیری سفارشات