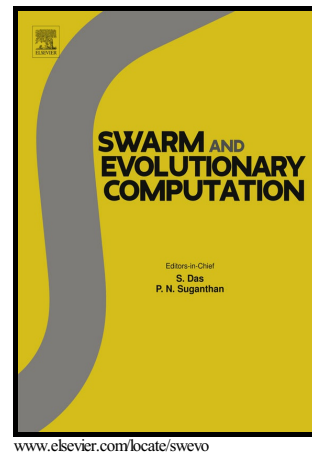


# Author's Accepted Manuscript

Modified Cuckoo Search Algorithm for  
Multiobjective Short-Term Hydrothermal  
Scheduling

Thang Trung Nguyen, Dieu Ngoc Vo



PII: S2210-6502(17)30368-1  
DOI: <http://dx.doi.org/10.1016/j.swevo.2017.05.006>  
Reference: SWEVO276

To appear in: *Swarm and Evolutionary Computation*

Received date: 15 May 2015  
Revised date: 8 February 2017  
Accepted date: 17 May 2017

Cite this article as: Thang Trung Nguyen and Dieu Ngoc Vo, Modified Cuckoo Search Algorithm for Multiobjective Short-Term Hydrothermal Scheduling *Swarm and Evolutionary Computation*, <http://dx.doi.org/10.1016/j.swevo.2017.05.006>

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 galley proof before it is published in its final citable 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.

# Modified Cuckoo Search Algorithm for Multiobjective Short-Term Hydrothermal Scheduling

Thang Trung Nguyen<sup>1</sup>, Dieu Ngoc Vo<sup>2\*</sup>

<sup>1</sup>Faculty of Electrical and Electronics Engineering, HCM City University of Technology and Education, Ho Chi Minh City, Vietnam

<sup>2</sup>Power System Optimization Research Group, Faculty of Electrical and Electronics Engineering, Ton Duc Thang University, Ho Chi Minh City, Vietnam

\*Corresponding author: Tel: +84-8-8 657 296 – Ext: 5730; vongocdiu@tdt.edu.vn

## Abstract

This paper proposes a modified cuckoo search algorithm (MCSA) for solving multi-objective short-term fixed head hydrothermal scheduling (HTS) problem. The main objective of the multiobjective HTS problem is to minimize both total power generation cost and emission of thermal generators over a scheduling period while satisfying power balance, hydraulic, and generator operating limit constraints. The proposed MCSA method is developed for the problem based on improvements from the conventional CSA method which is a new metaheuristic algorithm inspired from the behavior of some cuckoo species laying their egg into the nest of other species to improve the optimal solution and speed up the computational process. In the MCSA method, the nests are evaluated and classified into two groups including the top group with better quality eggs and the abandoned group with worse quality eggs. Two effective strategies via Lévy flights for producing new solutions are applied to the abandoned and top groups. To validate the efficiency of the MCSA method, several test systems have been tested and the result comparisons from the test systems have indicated that the proposed method can obtain higher quality solution and shorter computational time than many other methods. Therefore, the proposed MCSA method can be new efficient method for solving multiobjective short-term fixed-head HTS problems.

## Keywords:

Economic dispatch, emission dispatch, economic emission dispatch, Lévy flights, modified cuckoo search algorithm, multiobjective hydrothermal scheduling.

متن کامل مقاله

دریافت فوری ←

**ISI**Articles

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