

**AN IMPROVED ADAPTIVE SHUFFLED FROG LEAPING
ALGORITHM TO SOLVE VARIOUS NON SMOOTH ECONOMIC
DISPATCH PROBLEMS IN POWER SYSTEM**

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ABSTRACT

This thesis discusses the solution of Economic Dispatch (ED) problems which is to minimize the total cost of generation in power system operation by using an improved adaptive shuffled frog leaping algorithm (IASFLA). IASFLA is inspired from the behavior of a group of frogs to search a food source, is an optimization technique that has been developed for solving the various problems. In this study, the IASFLA is suggested in order to improve the local search and performance of SFLA for non-smooth optimization problem with non-convex solution spaces. The proposed IASFLA method is developed using MATLAB programming. The IASFLA method is tested on a ten generator units system with valve-point loading effects and multi-fuel source options. The results obtained proved that IASFLA is able to solve the problem with minimum total cost of generation compared to other methods.

TABLE OF CONTENTS

APPROVAL	i
DECLARATION.....	ii
ACKNOWLEDGEMENT	iii
ABSTRACT.....	iv
TABLE OF CONTENTS.....	v
LIST OF FIGURES	viii
LIST OF TABLES	ix
CHAPTER 1	1
INTRODUCTION.....	1
1.2. PROBLEM STATEMENT	2
1.3. SIGNIFICANT OF STUDY	3
1.4. OBJECTIVES	3
1.5. SCOPE OF WORK.....	3
1.6. THESIS ORGANIZATION.....	4
CHAPTER 2	5
LITERATURE REVIEW	5
2.1. INTRODUCTION	5
2.2. FUNDAMENTAL OF ECONOMIC DISPATCH	6
2.3. TECHNIQUE TO SOLVE NON-SMOOTH ECONOMIC DISPATCH PROBLEMS IN POWER SYSTEMS	7
2.3.1. Artificial Bee Colony (ABC) Optimization	7
2.3.2. Benders Decomposition (BD) Algorithm	7
2.3.3. Hybrid Chemical Reaction Optimization (CRO).....	8

2.3.4. Particle Swarm Optimization (PSO).....	8
2.3.5. Genetic Algorithm (GA).....	9
2.3.5. Harmony Search (HS) Algorithm	9
2.3.6 Shuffled Frog Leaping Algorithm (SFLA) In Solving Problem	10
CHAPTER 3	11
PROBLEM FORMULATION.....	11
3.1. INTRODUCTION	11
3.2. ECONOMIC DISPATCH PROBLEM.....	12
3.3. PRACTICAL ECONOMIC DISPATCH PROBLEMS CONSIDERING VALVE-POINT EFFECTS	13
3.4. PRACTICAL ECONOMIC DISPATCH PROBLEMS CONSIDERING MULTI-FUELS OPTIONS.....	14
3.4. PRACTICAL ECONOMIC DISPATCH PROBLEMS CONSIDERING BOTH VALVE-POINT EFFECTS WITH MULTI-FUELS OPTIONS	15
CHAPTER 4	16
METHODOLOGY	16
4.1. INTRODUCTION	16
4.2. SHUFFLED FROG LEAPING ALGORITHM (SFLA)	17
4.3. IMPROVED ADAPTIVE SHUFFLED FROG LEAPING ALGORITHM (IASFLA)	20
4.4. OPTIMIZATION PROCESS USING IASFLA	21
4.4.1. Improved Adaptive Shuffled Frog Leaping Algorithm (IASFLA).....	23
4.5. LOCAL SEARCH PROCESS IN IASFLA.....	26
CHAPTER 5	27
RESULTS AND DISCUSSION	27
5.1. INTRODUCTION	27