

IMPROVED PARTICLE SWARM OPTIMIZATION WITH VARYING PARAMETER SETTINGS FOR ECONOMIC LOAD DISPATCH

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CERTIFICATE

I, MUKESH KUMAR, Roll No. 2K12/PSY/09 student of M. Tech. (POWER SYSTEM), hereby declare that the dissertation/project titled “IMPROVED PARTICLE SWARM OPTIMIZATION WITH VARYING PARAMETER SETTINGS FOR ECONOMIC LOAD DISPATCH” under the supervision of Prof. N.K. JAIN of Electrical Engineering Department Delhi Technological University in partial fulfillment of the requirement for the award of the degree of Master of Technology has not been submitted elsewhere for the award of any Degree.

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ABSTRACT

In this thesis, four evolutionary optimization models (IPSO 1, 2, 3, and 4) based on the particle swarm optimization algorithms for Economic Load Dispatch considering cost of generation. Comparative analysis suggests that IPSO (Improved Particle Swarm Optimization) significantly improves the performance with less no of iteration. In the last version of IPSO, we have moved acceleration coefficient for personal factor C_p and global factor C_g in opposite direction (i.e. C_p maximum to minimum and C_g minimum to maximum), while keeping other parameter with some constant value, which shows that there is tremendous reduction in no of iteration. All different IPSO has been implemented to ECONOMIC LOAD DISPATCH to get optimum value of cost with less no of iteration.

A MATLAB program has been developed for Evolutionary Programming and Evolutionary Computation such as Particle Swarm Optimization (PSO) to solve economic load dispatch problem considering cost of generation.

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WITH EQUALITY CONSTRAINTS

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LIST OF SYMBOLS AND ABBREVIATIONS

IPSO	Improved Particle Swarm Optimization
PSO	Particle Swarm Optimization
C_p	Acceleration coefficient for cognitive component
C_g	Acceleration coefficient for social component
W	Inertia weight
p	No of particles
It_{max}	Maximum no. of iteration
K	Penalty coefficient