ECONOMIC DISPATCH ON ELECTRICAL POWER SYSTEM USING CHAOTIC ANT SWARM OPTIMIZATION (CASO)

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ABSTRACT

This thesis proposed Chaotic Ant Swarm Optimization (CASO) method for solving the economic dispatch problems of thermal generators in electrical power system. The algorithm based on the behavior of ant colonies have a smart organized action in the irregularities of their individual in the foraging process. Initially the influence of the organization variable on the behavior of individual ant is sufficiently small. With the continual change of organization variable evolving in time and space, the chaotic behavior of the individual decreases gradually. Via the influence of the organization variable and the communication of previously best positions with neighbors, the individual ant alters his position and moves to the best one they can found in the search space.

The proposed method was applied to IEEE 26-Bus test System and the 5-Bus Power system. Simulation results demonstrated that the method can obtain feasible and effective solutions, and it is a promising alternative approach for solving the Economic Dispatch problems in practical power systems.

Keywords: Economic Dispatch (ED), Optimal Power, Ant Colony Optimization (ACO), Chaotic Ant Swarm Optimization (CASO)