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# AN OPTIMIZED PID PARAMETERSFOR LFC IN INTERCONNECTED POWER SYSTEMS USING MLSL OPTIMIZATION ALGORITHM

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**ABSTRACT**

This research presents the load frequency control (LFC) of three interconnected power systems using a Multi-Level Single Linkage algorithm (MLSL) and a proportional-integral-derivative (PID) control approach. The conventional PID controller is developed using MLSL optimization algorithm including the LFC loop to minimize the frequency deviation and regulate the power exchange because of the load disturbance changes in area1 and area2. In order to enhance the dynamic performance, the optimal parameters of the PID scheme which optimized by the proposed MLSL algorithm are compared with that one's obtained by GA algorithm. Integral Square Error (ISE) is considered as an objective function for both algorithms to determine its performance index value for the same interconnected power system. The results show that the performance of the proposed method is more accurate and faster as well in response to the settling time, maximum deviation, and peak time. The combination algorithms set of MLSL_PID_ISE and GA_PID_ISE are coded and simulated using MATLAB.

**Keywords:** LFC, MLSL optimization algorithm based PID controller, GA algorithm, ISE.