1146-62-13   **Sharandeep singh*** (`sssinghsharan@gmail.com`), Department of mathematics, Punjabi University Patiala, Patiala, 147002, India. *STATISTICAL ANALYSIS OF ECONOMIC DISPATCH PROBLEM AND PARTICLE SWARM OPTIMIZATION ALGORITHM.* Preliminary report.

In this Paper, I have done a statistical analysis of nature-inspired optimization technique (PSO) with a new approach (MPSO) which I tested on three different type of classical functions. In statistical analysis, I used a new technique with particle swarm optimization to get exploitation, exploration, accuracy, and rate of convergence on classical functions. experimental results showed that the new technique better than Particle swarm optimization (PSO) in statistically analysis. The beauty of the new approach is that It solved many problems to get the exact value of functions whereas the old approach gets an approximation solution to the testing problems. This approach also tested on the real-life problem(Economic Dispatch Problems) for minimizing the fuel cost of power plants. (Received October 26, 2018)