An Enhanced Particle Swarm Optimization Algorithm for Multiobjective Problems

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Abstract : Multiobjective Particle Swarm Optimization (MOPSO) has shown an effective performance for solving test functions and real-world optimization problems. However, this method has a premature convergence problem, which may lead to lack of diversity. In order to improve its performance, this paper presents a hybrid approach which embedded the MOPSO into the island model and integrated a local search technique, Variable Neighborhood Search, to enhance the diversity into the swarm. Experiments on two series of test functions have shown the effectiveness of the proposed approach. A comparison with other evolutionary algorithms shows that the proposed approach presented a good performance in solving multiobjective optimization problems.