工程与应用

IPSO算法用于确定型单机场地面等待问题

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摘要　　针对单机场地面等待问题，已有人采用遗传算法进行了求解，但其搜索最优解的能力差，且搜索效率低。粒子群优化（PSO）算法对该问题解空间及粒子编码设计难度较大，因而还未曾用于解决地面等待问题。针对确定型单机场地面等待数学模型，分别采用基本PSO、线性递减惯性权重加收缩因子PSO、随机惯性权重加收缩因子PSO、模拟退火PSO算法四种方法对该模型进行优化求解，并和采用遗传算法的结果进行了对比，仿真实验表明这四种方法在寻优能力和寻优效率方面显著提高，其中模拟退火PSO方法最好。
关键词　　粒子群优化　模拟退火　单机场地面等待　延迟费用
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Deterministic single-airport ground-holding program based on Particle Swarm Optimization algorithm

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Abstract

Single-airport ground holding problem has been solved with genetic algorithm，which is inefficient of searching optimum.Particle Swarm Optimization（PSO） algorithm has not been used for solving the problem because its solution space and particle code are difficult to design.So several algorithms，including Linearly Decreasing Weight（LDW） with contraction factor PSO algorithm，Random Weight（RW） with contraction factor PSO algorithm and PSO algorithm combined with Simulated Annealing（SA），are adopted to solve the deterministic single-airport ground holding model problem.The simulation results show that the algorithms improve the ability and efficiency of searching optimum notably compared with genetic algorithm，PSO algorithm combined with SA is the best in all.

Key words Particle Swarm Optimization（PSO） simulated annealing single-airports ground-holding delay cost

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