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Applications of Improved Multi-Agent Genetic Algorithm to Water Pollution Control System Planning

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Combining the ability of apperception and counteractive to environment of agent with search method of genetic algorithm, an improved multi-agent genetic algorithm (MAGA) is advanced. It ensures diversity of population and improves local search ability of genetic algorithm by simulating competition, cooperate and self-study of different agents using neighboring cross operator, aberrance operator and self-learning operator of agent. The algorithm is applied to the optimal planning for the waste treatment system of Urumqi, Xinjiang. Results demonstrate an improved performance in finding the global minimum when water quality requirements have been fulfilled. The result demonstrates nicer performance and factual value of MAGA.