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Ahmad R. Almomani* (almomaar@clarkson.edu), 8 Clarkson Ave. Box 5815, Mathematics Department, Clarkson University, Potsdam, NY 13699. *Constraint Handling for Water Resources Application with Filter Particle Swarm Optimization.*

When the derivative is hard to compute or unavailable in most real-world, then we use Derivative-Free Optimization(DFO) solvers. The presence of constraints brings difficulties in searching step since the search space has to be restricted to a feasible region. We introduce new algorithm for global method that combine filter method for constraints with Particle Swarm Optimization (PSO) method. We apply the new algorithm on water resources policy and compare it with current solvers using performance and data profiles. (Received September 19, 2015)