On the Globally Concavized Filled Function Method *

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Abstract. In this paper we present a new definition on the globally concavized filled function for the continuous global minimization problem, which was modified from that by Ge [3]. A new class of globally concavized filled functions are constructed. These functions contain two easily determinable parameters, which are not dependent on the radius of the basin at the current local minimizer. A randomized algorithm is designed to solve the box constrained continuous global minimization problem basing on the globally concavized filled functions, which can converge asymptotically with probability one to a global minimizer of the problem. Preliminary numerical experiments are presented to show the practicability of the algorithm.

Key words: Box constrained continuous global minimization problem, Globally concavized filled function, Asymptotic convergence, Stopping rule

*Research supported by the National Natural Science Foundation of China under Grant 10301009, and the Natural Science Foundation of Fujian Province under Grant A0310013.

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