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A Review on Filled Function Method in Global Optimization

Filled function method is one of the deterministic methods in global optimization aiming to find global minimizer of a given objective function. The basic idea of filled function method is to construct an auxiliary function, called filled function of a given objective function $f(x)$, such that minimizing this filled function will generate a point x_{k+1} in a basin of $f(x)$ lower than the basin B_k^* of $f(x)$ at x_k^* so that the minimization of the function $f(x)$ can be started at the point x_{k+1} to generate a new minimizer x_{k+1}^* of $f(x)$ with $f(x_{k+1}^*) < f(x_k^*)$. This process is repeated until a global minimizer is found. In this study new filled functions trying to broaden the basins of the objective function are investigated.

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