

Niedeterministyczne Metody Optymalizacji: funkcje testowe nr 1

Tabela 1.

nazwa	funkcja	dziedzina
Ackley	$f(\mathbf{x}) = -20 \exp \left(-0.2 \sqrt{\frac{1}{n} \sum_{i=1}^n x_i^2} \right) - \exp \left(\frac{1}{n} \sum_{i=1}^n \cos(2\pi x_i) \right) + 20 + e$	$[-32.768, 32.768]$
Whitley	$f(\mathbf{x}) = \sum_{i=1}^n \sum_{j=1}^n \left[\frac{(100(x_i^2 - x_j)^2 + (1 - x_j)^2)^2}{4000} - \cos(100(x_i^2 - x_j)^2 + (1 - x_j)^2) + 1 \right]$	$[-10.24, 10.24]$
Levy07	$f(\mathbf{x}) = \frac{\pi}{n} \left(k \sin^2(\pi y_1) + \sum_{i=1}^{n-1} [(y_i - A)^2 (1 + k \sin^2(\pi y_{i+1}))] + (y_n - A)^2 \right)$ <p>gdzie: $A = 1, k = 10, \pi = 3.141592 \dots$ oraz $y_i = 1 + \frac{x_i - 1}{4}$</p>	$[-10, 10]$

Minima globalne:

1. Ackley: $\mathbf{x}^* = (0, 0, \dots, 0)$, $f(\mathbf{x}^*) = 0$.
2. Whitley: $\mathbf{x}^* = (1, 1, \dots, 1)$, $f(\mathbf{x}^*) = 0$.
3. Levy07: $\mathbf{x}^* = (1, 1, \dots, 1)$, $f(\mathbf{x}^*) = 0$.