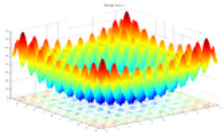
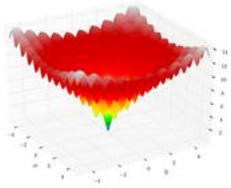
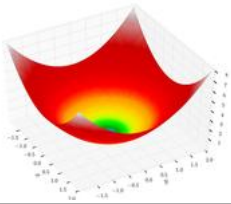
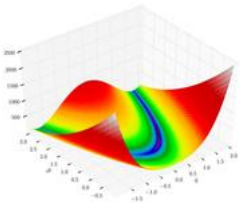
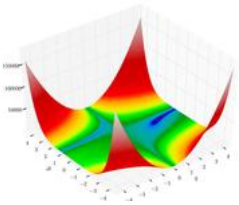
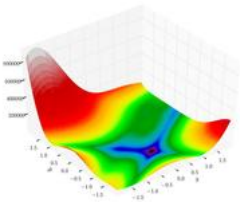
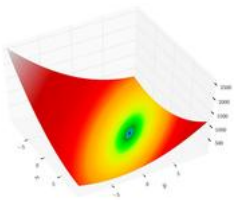
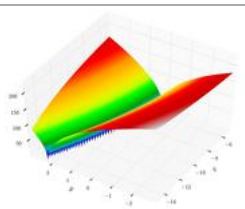
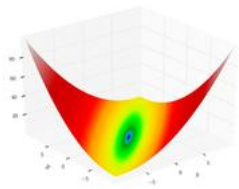
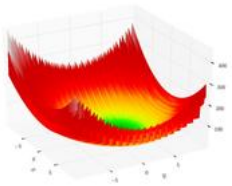
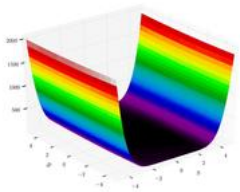
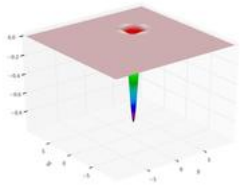
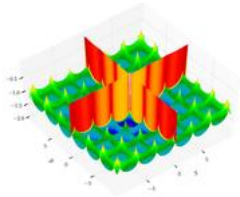
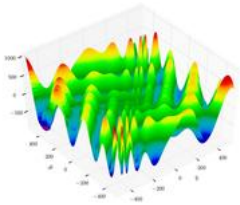
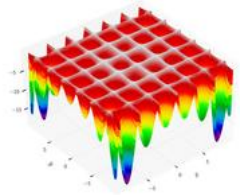
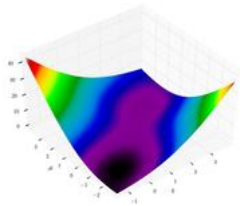
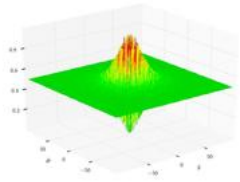
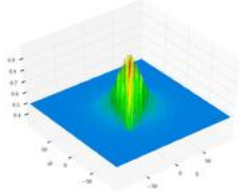
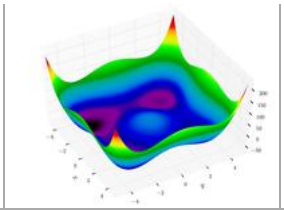
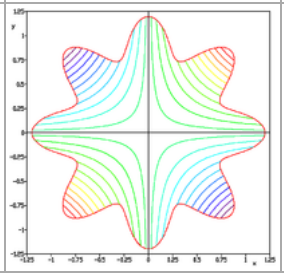
Name	Plot	Formula	Minimum
Rastrigin function		$f(\mathbf{x}) = An + \sum_{i=1}^{n} \left[x_i^2 - A\cos(2\pi x_i)\right]$ where: $A = 10$	$f(0,0) = 0$
Ackley's function		$f(x,y) = -20\exp\left(-0.2\sqrt{0.5\left(x^2+y^2\right)}\right)$ $-\exp(0.5\left(\cos(2\pi x)+\cos(2\pi y)\right)) + e + 20$	$f(0,0) = 0$
Sphere function		$f(\boldsymbol{x}) = \sum_{i=1}^{n} x_i^2$	$f(x_1,\ldots,x_n) = f(0,\ldots,0)$
Rosenbrock function		$f(\boldsymbol{x}) = \sum_{i=1}^{n-1}\left[100\left(x_{i+1}-x_i^2\right)^2 + \left(x_i-1\right)^2\right]$	$\text{Min} = \begin{cases} n=2 & \to & f(1,1) = \\ n=3 & \to & f(1,1,1) \\ n>3 & \to & f\left(\underbrace{1,\ldots}_{(n)\ \text{ti}}\right. \end{cases}$
Beale's function		$f(x,y) = \left(1.5 - x + xy\right)^2 + \left(2.25 - x + xy^2\right)^2$ $+\left(2.625 - x + xy^3\right)^2$	$f(3,0.5) = 0$
Goldstein–Price function		$f(x,y) = \left(1 + (x+y+1)^2\left(19 - 14x + 3x^2 - 14y + 6xy + 3y^2\right)\right)$ $\left(30 + (2x-3y)^2\left(18 - 32x + 12x^2 + 48y - 36xy + 27y^2\right)\right)$	$f(0,-1) = 3$
Booth's function		$f(x,y) = (x+2y-7)^2 + (2x+y-5)^2$	$f(1,3) = 0$
Bukin function N.6		$f(x,y) = 100\sqrt{\left\lvert y - 0.01x^2\right\rvert} + 0.01\left\lvert x+10\right\rvert.$	$f(-10,1) = 0$
Matyas function		$f(x,y) = 0.26\left(x^2+y^2\right) - 0.48xy$	$f(0,0) = 0$
		$f(x,y) = \sin^2(3\pi x) + (x-1)^2\left(1 + \sin^2(3\pi y)\right)$	

Lévi function N.13		$+(y-1)^2\left(1+\sin^2(2\pi y)\right)$	$f(1,1)=0$
Three-hump camel function		$f(x,y)=2x^2-1.05x^4+\frac{x^6}{6}+xy+y^2$	$f(0,0)=0$
Easom function		$f(x,y)=-\cos(x)\cos(y)\exp\left(-\left((x-\pi)^2+(y-\pi)^2\right)\right)$	$f(\pi,\pi)=-1$
Cross-in-tray function		$f(x,y)=-0.0001\left(\left\lvert\sin(x)\sin(y)\exp\left(\left\lvert 100-\frac{\sqrt{x^2+y^2}}{\pi}\right\rvert\right)\right\rvert+1\right)^{0.1}$	$\text{Min}=\begin{cases}f(1.34941,-1.34941)\\f(1.34941,1.34941)\\f(-1.34941,1.34941)\\f(-1.34941,-1.34941)\end{cases}$
Eggholder function		$f(x,y)=-(y+47)\sin\left(\sqrt{\left\lvert\frac{x}{2}+(y+47)\right\rvert}\right)-x\sin\left(\sqrt{\lvert x-(y+47)\rvert}\right)$	$f(512,404.2319)=-959.6$
Hölder table function		$f(x,y)=-\left\lvert\sin(x)\cos(y)\exp\left(\left\lvert 1-\frac{\sqrt{x^2+y^2}}{\pi}\right\rvert\right)\right\rvert$	$\text{Min}=\begin{cases}f(8.05502,9.66459)\\f(-8.05502,9.66459)\\f(8.05502,-9.66459)\\f(-8.05502,-9.66459)\end{cases}$
McCormick function		$f(x,y)=\sin(x+y)+(x-y)^2-1.5x+2.5y+1$	$f(-0.54719,-1.54719)=-1$
Schaffer function N. 2		$f(x,y)=0.5+\frac{\sin^2\left(x^2-y^2\right)-0.5}{\left(1+0.001\left(x^2+y^2\right)\right)^2}$	$f(0,0)=0$
Schaffer function N. 4		$f(x,y)=0.5+\frac{\cos^2\left(\sin\left(\lvert x^2-y^2\rvert\right)\right)-0.5}{\left(1+0.001\left(x^2+y^2\right)\right)^2}$	$f(0,1.25313)=0.29257$

Styblinski–Tang function		$f(\boldsymbol{x}) = \frac{\sum_{i=1}^{n} x_i^4 - 16x_i^2 + 5x_i}{2}$	$-39.16617n < f\left(\underbrace{-2.903534, \ldots, -2.903}_{(n) \text{ times}}\right.$
Simionescu function[10]		$f(x, y) = 0.1xy,$ subjected to: $x^2 + y^2 \leq \left(r_T + r_S \cos\left(n \arctan\frac{x}{y}\right)\right)^2$ where: $r_T = 1, r_S = 0.2$ and $n = 8$	$f(\pm 0.85586214, \mp 0.85586214) =$

Test functions for multi-objective optimization problems