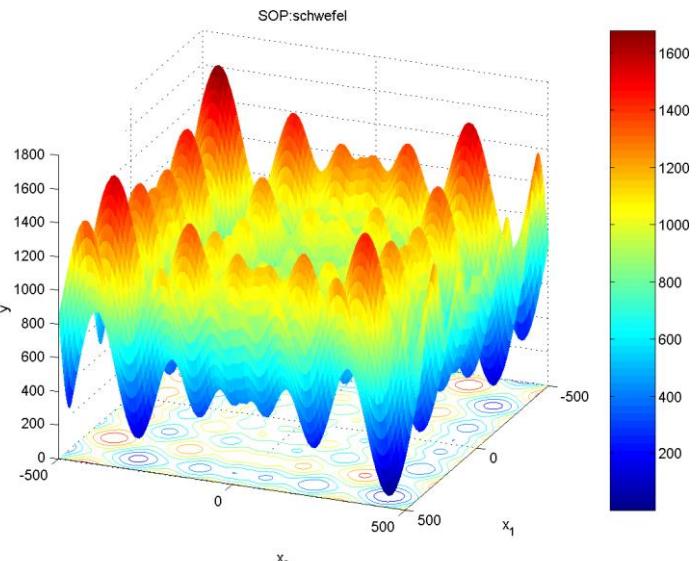


## SCHWEFEL

|                     |  |
|---------------------|--|
| Desc                | Schwefel's function has a local minimum in the point where one element is 302.5232 and the others are 420.9687. It is rather far from the global minimum, so there is a chance that an algorithm will miss the global minimum.   |
| Source              | <a href="http://qai.narod.ru/GA/testfunc.html">http://qai.narod.ru/GA/testfunc.html</a>  |
| Problem formulation | $\begin{cases} \min_{x \in \mathbb{R}^N} (418.9829N + \sum_{i=1}^N (-x_i \sin(\sqrt{ x_i }))) \\ -500 \leq x_i \leq 500 \end{cases}$   |
| Known minima        | $x_i = 420.9687$<br>$f(x) = 0$   |
| Parameters          | PP - (1*1) scalar – number of input dimensions (N)   |
| Picture             |  <p>The figure is a 3D surface plot titled "SOP:schwefel". The vertical axis represents the function value, ranging from 0 to 1800 with major ticks every 200 units. The horizontal axes are labeled <math>x_1</math> and <math>x_2</math>, both ranging from -500 to 500 with major ticks every 500 units. The surface is highly oscillatory and non-convex, featuring numerous sharp peaks of varying heights and deep valleys. A color bar on the right side of the plot indicates the function values, with colors transitioning from dark blue (low values around 200) through yellow and orange to red (high values up to 1600). The plot title "SOP:schwefel" is located at the top center of the visualization.</p> |