**YUKI Algorithm test functions and images**

|  |  |  |  |
| --- | --- | --- | --- |
|  | Sphere | [-5.12 5.12] | 30 |
|  | Powell Sum | [-1 1] | 30 |
|  | Powell Sum | [-5 5] | 30 |
|  | Brown | [-4 4] | 30 |
|  | Exponential | [-2 2] | 30 |
|  | Xin-She Yang N. 3 | [-10 10] | 30 |
|  | Zakharov | [-10 10] | 30 |
|  | Schwefel 2.20 | [-100 100] | 30 |
|  | Schwefel 2.21 | [-100 100] | 30 |
|  | Schwefel 2.22 | [-10 10] | 30 |

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| --- | --- | --- | --- |
|  | Rosenbrock | [-30 30] | 30 |
|  | Schwefel | [-500 500] | 30 |
|  | Rastrigin | [-5.12 5.12] | 30 |
|  | Xin-She Yang N. 2 | [-6.28 6.28] | 30 |
|  | Xin-She Yang N. 4 | [-10 10] | 30 |
|  | Happy Cat | [-2 2] | 30 |
|  | Periodic | [-10 10] | 30 |
|  | Quartic | [-1.28 1.28] | 30 |
|  | Shubert 3 | [-10 10] | 30 |
|  | Salomon | [-4 4] | 30 |

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| --- | --- | --- | --- |
|  | Three-Hump Camel | [-2 2] | 2 |
|  | Drop-Wave | [-5 5] | 2 |
|  | Leon | [-2 2] | 2 |
|  | Booth | [-10 10] | 2 |
|  | Matyas | [-10 10] | 2 |
|  | Brent | [-20 0] | 2 |
|  | Schaffer N. 1 | [-50 50] | 2 |
|  | Ackley N. 2 | [-30 30] | 2 |
|  | Bohachevskyn N. 1 | [-100 100] | 2 |
|  | Schaffer N. 4 | [-100 100] | 2 |

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| --- | --- | --- | --- |
|  | Keane | [-10 10] | 2 |
|  | Levi N. 13 | [-10 10] | 2 |
|  | Bukin N. 6 | [-15 5] | 2 |
|  | Holder-Table | [-10 10] | 2 |
|  | Cross-in-Tray | [-10 10] | 2 |
|  | Wolfe | [0 2] | 2 |
|  | Egg Crate | [-20 20] | 2 |
|  | McCormick | [-1.5 4] | 2 |
|  | Deckkers-Aarts | [-20 20] | 2 |
|  | Bartels Conn | [-500 500] | 2 |

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| --- | --- | --- |
|  | [-5 5] | 2 |
|  | [-5 5] | 2 |
|  | [-5 5] | 2 |
|  | [-5 5] | 2 |
|  | [-5 5] | 2 |
|  | [-5 5] | 2 |
|  | [-5 5] | 2 |
|  | [-5 5] | 2 |
|  | [-5 5] | 2 |
|  | [-5 5] | 2 |

Best points

MeanBest

Absolute Best Point

Randomly generated points

Local search area

Focus

Explore

|  |  |  |
| --- | --- | --- |
| F3 | F6 | F10 |
| F14 | F19 | F22 |
| F27 | F31 | F33 |
| F41 | F42 | F43 |
| F44 | F45 | F46 |
| F47 | F48 | F49 |
|  | F50 |  |