Please enter the number of Benchmark (1, 2, 3, 4): 1

Please enter number of Particles: 5

Please choose sub-algorithm (3 for GA): 3

\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

GlobalBestFitness: 0.000000, GlobalBestCoordinate: (0.853872,0.487422,0.309140)

min\_of\_z: 0.000000:

coordinate of min\_of\_z: (0.000000,0.000000,0.000000):

\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

Alone GA:

GlobalBestFitness: 1.000000, GlobalBestCoordinate: (1.594477,0.684888,0.165764)

\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

error of TBO:

1.0307

\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

error of Alone:

1.7432

>>

Please enter the number of Benchmark (1, 2, 3, 4): 1

Please enter number of Particles: 10

Please choose sub-algorithm (3 for GA): 3

\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

GlobalBestFitness: 0.000000, GlobalBestCoordinate: (0.371709,0.379995,0.884690)

min\_of\_z: 0.000000:

coordinate of min\_of\_z: (0.000000,0.000000,0.000000):

\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

Alone GA:

GlobalBestFitness: 0.000000, GlobalBestCoordinate: (0.813731,0.426877,0.862814)

\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

error of TBO:

1.0321

\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

error of Alone:

1.2605

>>

Please enter the number of Benchmark (1, 2, 3, 4): 2

Please enter number of Particles: 5

Please choose sub-algorithm (3 for GA): 3

\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

GlobalBestFitness: 0.081120, GlobalBestCoordinate: (-13.000000,3.124142,0.486072)

min\_of\_z: 0.000000:

coordinate of min\_of\_z: (0.000000,0.000000,0.000000):

\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

Alone GA:

GlobalBestFitness: 0.294525, GlobalBestCoordinate: (-13.351177,-18.115189,-4.176102)

\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

error of TBO:

13.3790

\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

error of Alone:

22.8879

>>

Please enter the number of Benchmark (1, 2, 3, 4): 2

Please enter number of Particles: 10

Please choose sub-algorithm (3 for GA): 3

\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

GlobalBestFitness: 0.000000, GlobalBestCoordinate: (0.000000,0.009685,0.499111)

min\_of\_z: 0.000000:

coordinate of min\_of\_z: (0.000000,0.000000,0.000000):

\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

Alone GA:

GlobalBestFitness: 0.072210, GlobalBestCoordinate: (-8.066564,-5.307310,0.211658)

\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

error of TBO:

0.4992

\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

error of Alone:

9.6583

>>

Please enter the number of Benchmark (1, 2, 3, 4): 3

Please enter number of Particles: 5

Please choose sub-algorithm (3 for GA): 3

\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

GlobalBestFitness: 0.000000, GlobalBestCoordinate: (0.000000,0.000000,0.000000)

min\_of\_z: 0.000000:

coordinate of min\_of\_z: (0.000000,0.000000,0.000000):

\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

Alone GA:

GlobalBestFitness: 1.068841, GlobalBestCoordinate: (0.250667,0.698361,1.360711)

\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

error of TBO:

0

\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

error of Alone:

1.5499

>>

Please enter the number of Benchmark (1, 2, 3, 4): 3

Please enter number of Particles: 10

Please choose sub-algorithm (3 for GA): 3

\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

GlobalBestFitness: 0.000000, GlobalBestCoordinate: (0.183709,0.664772,0.133742)

min\_of\_z: 0.000000:

coordinate of min\_of\_z: (0.000000,0.000000,0.000000):

\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

Alone GA:

GlobalBestFitness: 2.000008, GlobalBestCoordinate: (0.646290,4.612937,0.335713)

\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

error of TBO:

0.7025

\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

error of Alone:

4.6701

>>

Please enter the number of Benchmark (1, 2, 3, 4): 4

Please enter number of Particles: 5

Please choose sub-algorithm (3 for GA): 3

\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

GlobalBestFitness: 1066.122361, GlobalBestCoordinate: (66.439827,66.448439,66.218837)

min\_of\_z: 1066.122361:

coordinate of min\_of\_z: (66.000000,66.000000,66.000000):

\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

Alone GA:

GlobalBestFitness: 1071.700229, GlobalBestCoordinate: (62.110193,66.430371,60.910341)

\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

error of TBO:

0.6652

\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

error of Alone:

6.4203

>>

Please enter the number of Benchmark (1, 2, 3, 4): 4

Please enter number of Particles: 10

Please choose sub-algorithm (3 for GA): 3

\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

GlobalBestFitness: 1066.122361, GlobalBestCoordinate: (66.896241,66.807664,66.498433)

min\_of\_z: 1066.122361:

coordinate of min\_of\_z: (66.000000,66.000000,66.000000):

\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

Alone GA:

GlobalBestFitness: 1066.973757, GlobalBestCoordinate: (65.115383,65.738089,63.281894)

\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

error of TBO:

1.3054

\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

error of Alone:

2.8704

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