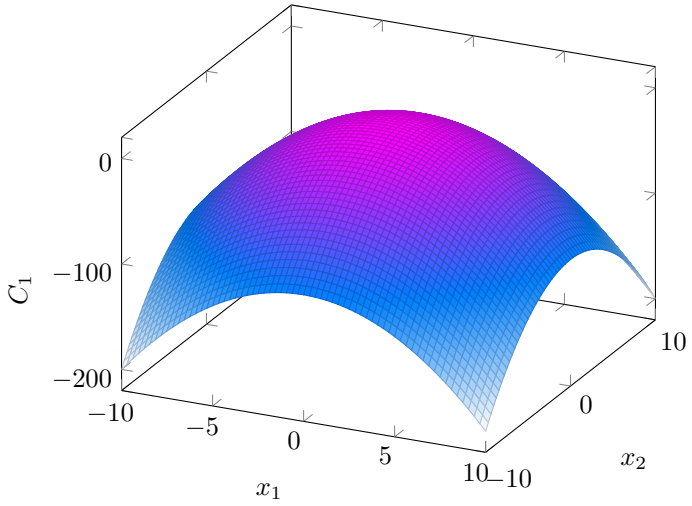

Figure 1: Quadratic concave function $C_1(x_1, x_2)$.

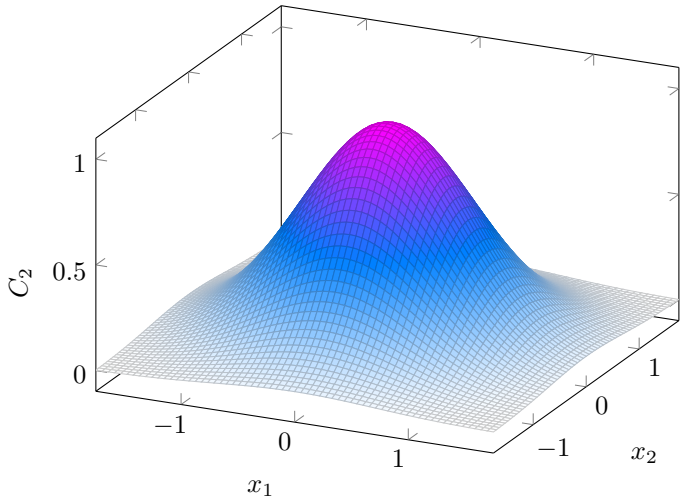

Figure 2: Two variable Gaussian function $C_2(x_1, x_2)$.

1 adf

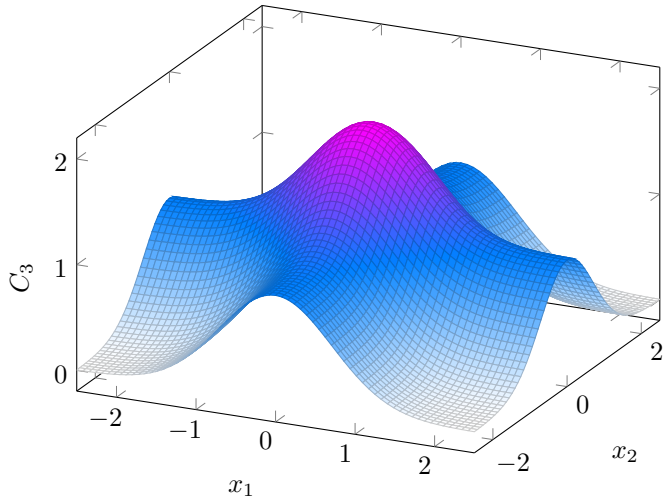

Figure 3: Modified version of Gaussian function $C_3(x_1, x_2)$.

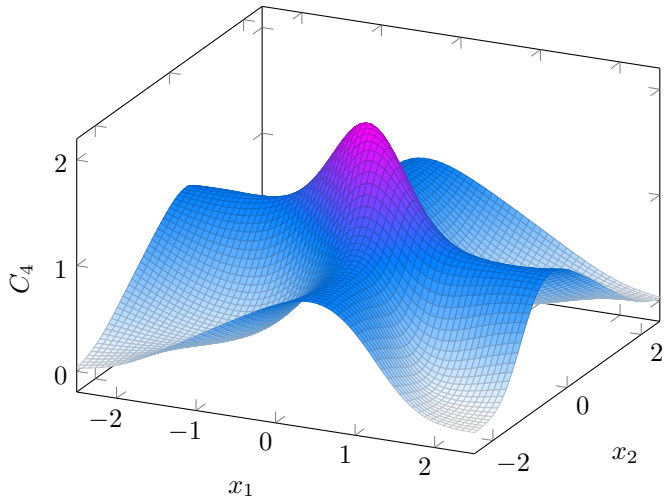

Figure 4: The proposed function $C_4(x_1, x_2)$ for $a = 0.49$.

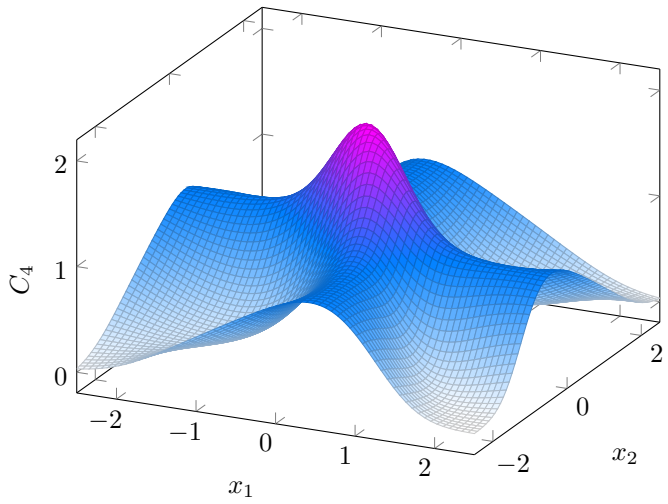

Figure 5: The proposed function $C_4(x_1, x_2)$ for $a = 0.49$.

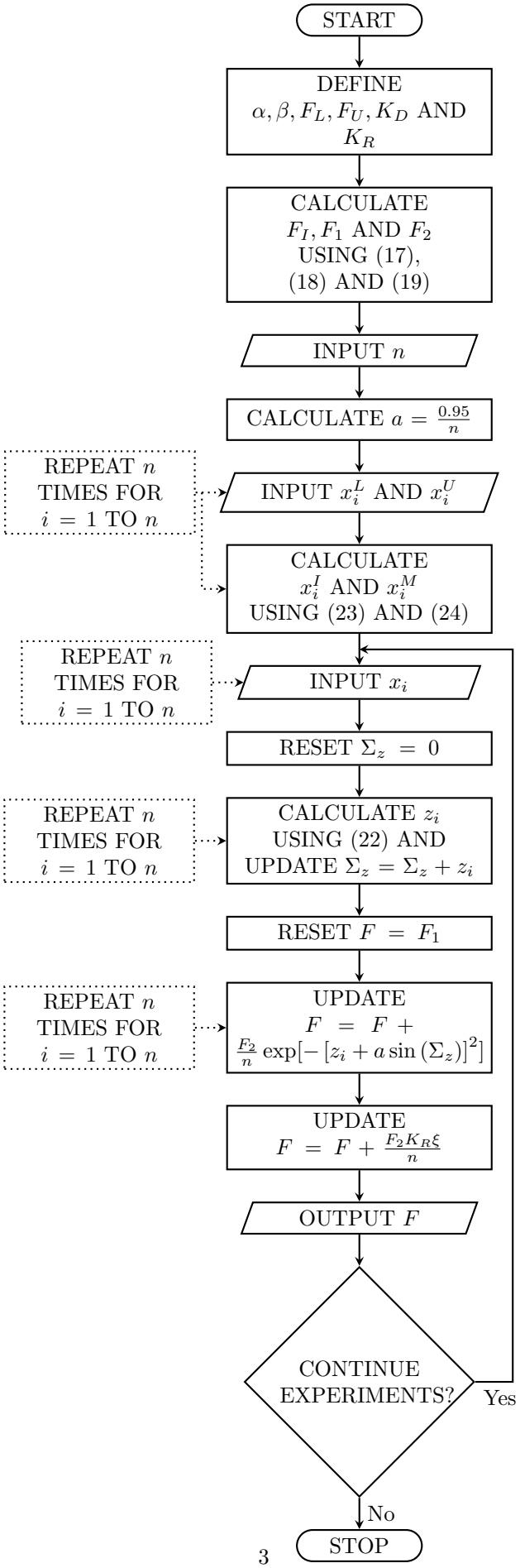

Figure 6: Flowchart of the proposed algorithm

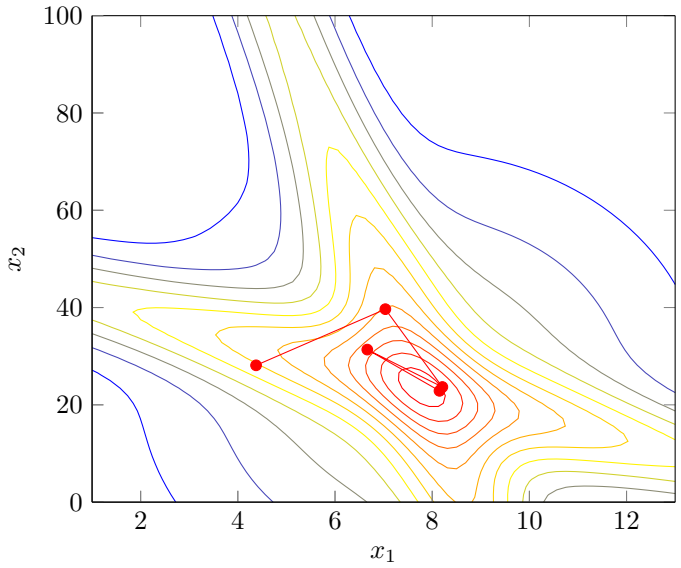

Figure 7: Contour plot of F with the constants given in Section **??** superimposed with the RSM results.

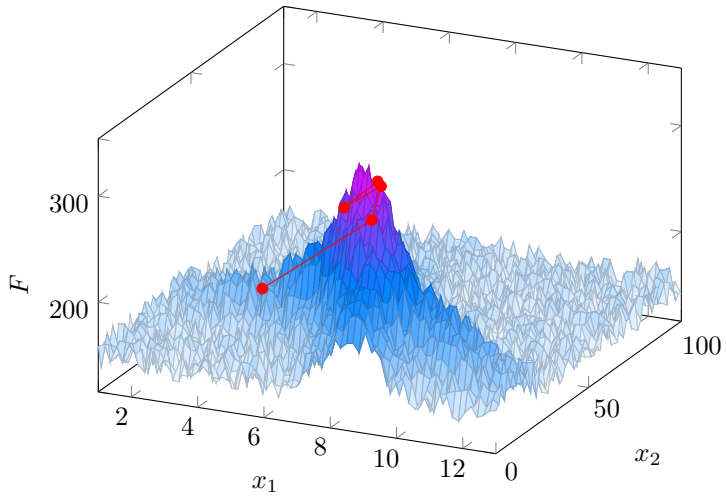

Figure 8: The proposed function $C_4(x_1, x_2)$ for $a = 0.49$.

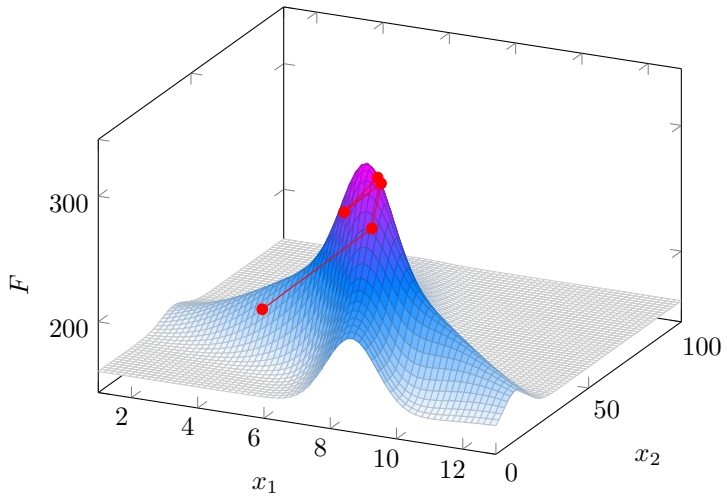

Figure 9: The proposed function $C_4(x_1, x_2)$ for $a = 0.49$.

Select number of factors

2

Reset

Select the upper and lower limits

Factor	Lower limit	Upper limit
pH	1	13
Temperature	0	100

Modify factors/limits

Perform individual experiment/measure distance from optimum value (validate optimum value)

Factor	Value
pH	7.036116534
Temperature	39.66737

Calculate response | Is optimum

Response= 257.4002153

Perform bulk experiments

```
7.036116534     39.66737
10.03611653     14.66737
10.03611653     64.66737
7.036116534     39.66737
```

Save results to clipboard | Save results to a file

Figure 10: The proposed function $C_4(x_1, x_2)$ for $a = 0.49$.