TABLE 1 Part Simulation Results of Measuring Data

Measuring concentration(10^{-6})			Simulation results of model(10^{-6})			Reference errors(%)		
NO_2	SO_2	NO	NO_2	SO_2	NO	NO_2	SO_2	NO
0	281.7	1166.2	0.7	279.4	1162.0	0.098	0.31	0.36
0	423.1	1166.2	1.3	427.2	1174.8	0.18	0.55	0.74
0	741.6	1166.2	3.2	735.0	1164.7	0.45	0.89	0.13
194.3	281.7	0	198.3	281.9	1.2	0.56	0.027	0.10
194.3	423.1	0	191.3	421.7	1.1	0.42	0.19	0.094
194.3	741.6	0	193.2	740.9	1.5	0.15	0.094	0.13
194.3	0	305.4	195.5	0.9	308.1	0.17	0.12	0.23
539.8	0	305.4	538.1	0.4	300.6	0.24	0.054	0.41
539.8	281.7	305.4	539.1	283.7	300.5	0.098	0.27	0.42
539.8	423.1	305.4	538.8	420.0	301.0	0.14	0.42	0.38
539.8	741.6	305.4	534.3	741.0	298.0	0.77	0.080	0.63
712.4	281.7	1166.2	711.0	281.3	1159.8	0.20	0.054	0.55
712.4	423.1	1166.2	708.4	420.1	1160.9	0.56	0.40	0.45
712.4	741.6	1166.2	707.6	738.5	1161.6	0.67	0.42	0.40

TABLE 2 Linearity of the Three Gases

Gas	The maximum reference errors(10^{-6})	Measurement range(10^{-6})	Linearity(%)
NO_2	0.3	712	0.04
SO_2	2.2	740	0.30
NO	6.4	1166	0.55

V. Conclusion

The accuracy of SVM model largely depends on the selection of relevant parameters. This paper has solved the problem of parameter optimization by introducing PSO algorithm. The SVM model has been established by the sample of measurement data and evaluated at the same time. As the experimental results shown, the gas sensor model based on SVM with PSO has high accuracy by comparing with the measured data. is less than 1% and meet the requirements of the accuracy.

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