Bio mathematical Analysis on Impedance Measurement during COVID-19 Pandemic

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Abstract

The coating impedance size can reþect the aging degree of the coating to a certain extent; therefore, the measurement of the coating impedance size can monitor the aging degree of the coating in real time. Since the coating is traditionally considered as an insulating medium, its impedance value before aging is as high as 10^8 q or more, it is di cult to achieve accurate impedance measurement, and the current generated by loading by voltammetry at low voltage is very weak and easily a ected by external electromagnetic interference noise, and the measurement accuracy is low. In this paper, by pluralizing the high impedance, establishing the mathematical model of di erential ampliýcation circuit, and then using sinusoidal ýtting in which processing, so that the obtained signal is more accurate during COVID-19 pandemic.

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We can use to verify smooth (y, span). e following gure shows the result of data (Figure 1).

We can draw the following discrete curve by inputting the following commands in the command line window

>> = 0: 100;

>> = 2 (2 ./25 + /4) + 3;

>> (,);

(Figure 2, 3)

If each point of the above discrete curve is de ned by

= (+) + +

Since the known curve is drawn, the above parameters can be easily obtained, and the error of each point is 0. However, for a relatively disordered sequence, there will always be a certain deviation from the ideal curve, so the error will not be 0, but our purpose is to nd a curve that is closest to it, and the evaluation standard is the sum of squares of errors, which is consistent with the least square method (Figure 4-6).

Similarly, we use the following expression

= (+) +)+ 6SΩ=¾

For subsequent operation processing, another form is used to express

= ? ð?öZÂ ðsðt°tð

sources of air pollutants, but there is room for improvement in the current models. By incorporating time series data or advanced models, a clearer picture of the behavior of pollutants can be obtained. Although TRA is primarily used for PM, it can also be applied to other pollutants such as carbon black, ozone, and ammonium sulfate. More research is needed in regions outside of Europe, the US, and the Arctic, such as Latin America, Africa, and Asia.

CA and PCA are more commonly used techniques and have been applied in various ways in previous studies. is literature review aims to scrutinize and analyze a wide range of research studies that investigate the connection among meteorological parameters and pollutants. By combining TRA, CA, and PCA, a more comprehensive recognizing of the correlation between meteorological variables, emission sources and air pollutants can be obtained. Using TRA to determine emission sources, CA to group cities based on weather patterns and pollutant behavior, and PCA to quantify the relationships between variables, a spatial model between cities can be created. is review is a novel examination of studies that employs PRISMA guidelines in the analysis of meteorological variables and air pollutants, utilizing CA, PCA and TRA.

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