

Mathematical Model and Definition of the Effective Error of Measuring Instruments

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key words

basic error, additional error,
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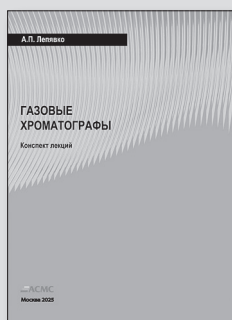
Measurement is an information process of obtaining a numerical value of a measured quantity by experiment. Any measurement is performed with some error, which distorts the measurement result and allows to determine only an approximate value of the measured quantity. Errors limit the number of reliable significant digits of the numerical value of the measured quantity and are characterized by the difference between the measured value and the true value of the measured quantity. The article presents a mathematical model of measurement errors based on probability theory and mathematical statistics. Expressions for estimating basic and additional errors with correlated components are provided. The least squares method is applied to process experimental data. The obtained results improve the reliability of metrological measurement assessment.

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НОВАЯ КНИГА

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