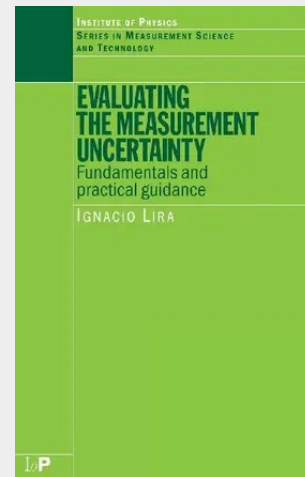


Evaluating the Measurement Uncertainty

Fundamentals and Practical Guidance

It is now widely recognized that measurement data should be properly analyzed to include an assessment of their associated uncertainty. Since this parameter allows for a meaningful comparison of the measurement results and for an evaluation of their reliability, its expression is important not only in the specialized field of scientific metrology, but also in industry, trade, and commerce. General rules for evaluating and expressing the uncertainty are given in the internationally accepted ISO Guide to the Expression of Uncertainty in Measurement, generally known as the GUM. Evaluating the Measurement Uncertainty details the theoretical framework on which the GUM is based and provides additional material on more advanced topics such as least-squares adjustment and Bayesian statistics. The book does not require previous knowledge other than elementary calculus and can be read as a complement to the GUM or as a stand-alone reference source. It stresses fundamental principles and illustrates their applications through numerous examples taken from many different fields of metrology. The book includes practical guidance as well as theoretical aspects, resulting in an invaluable resource for metrologists, engineers, physicists, and graduate students involved with measurements in academia and industry.

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