Bücher

Franz Adunka: Messunsicherheiten - Theorie und Praxis

2. Auflage, ca. 240 Seiten, Vulkan-Verlag Essen
ISBN: 3-8027-2194-2
Preis: 38,86 EUR

Thema des Buches ist die Ermittlung von Messunsicherheiten. Es werden die erforderlichen Kenntnisse aus der Theorie der Messabweichungen, statistische Rahmenkenntnisse sowie die nach international harmonisierten Dokumenten geforderte formalisierte Vorgangsweise bei der Messunsicherheitsermittlung erläutert und begründet. In der zweiten, stark erweiterten Auflage werden die wesentlichen Begriffe für die praktische Vorgangsweise noch klarer formuliert. Darüber hinaus ist das Kapitel Kovarianzen stark überarbeitet sowie ein Kapitel über Ausgleichsrechnung neu aufgenommen worden. In beiden Kapiteln wird neben der klassischen Vorgangsweise die Matrizenschreibweise eingeführt. Im Anhang sind dazu auch die wesentlichen Rechenregeln der Matrizenrechnung zusammengestellt. Zahlreiche Beispiele vermitteln dem in der Praxis stehenden Techniker die schematische Vorgehensweise und erleichtern ihm damit eine Lösung "seiner" speziellen Probleme.

Rein Laaneots and Olev Mathiesen: An Introduction to Metrology

Informationsblatt (pdf), TUT Press, the Publishing Office of theTallinn University of Technology, Estonia
ISBN: 9985-59-609-9
Preis: 55 EUR

The book An Introduction to Metrology by Rein Laaneots and Olev Mathiesen is intended to be a textbook for metrology courses on post-secondary level and should be an invaluable tool for the practitioner. The book contains basic and essential facts on measurement. Starting from a presentation of the concepts of physical quantity, the value of a physical quantity and unit of measurement, the authors discuss measurement as a process that has the object of determining a value of a quantity. Measurands are treated as stochastic variables, and a theoretical model for the measurement result as an estimate of the value of the measured quantity is presented. The reliability of measurement results is discussed thoroughly; in particular, uncertainty of measurement and its estimation. In this connection, an account is given of relevant parts of mathematical statistics and the propagation of uncertainty of measurement. Separate sections deal with comparison and presentation of the results of measurement, properties of measuring instruments and their calibration and with the international metrological infrastructure. Practical use of the described methods is illustrated by numerous examples. The terminology used, and the approach to uncertainty of measurement, are fully in line with the recommendations given in VIM and in GUM. Bipacked to the book is an educational version of the Metrodata GmbH tool for uncertainty analysis, GUM Workbench, together with the data files resulting from the use of the program on some of the examples discussed in the book.

Les Kirkup and Bob Frenkel: An Introduction to Uncertainty in Measurement

Cambridge University Press, Cambridge, United Kingdom
ISBN: 0-521-60579-2
Buchbesprechung von Prof. D. Brynn Hibbert, University of New South Wales, Sydney, Australia

Measurement shapes scientific theories, characterises improvements in manufacturing processes and promotes efficient commerce. In concert with measurement is uncertainty, and students in science and engineering need to identify and quantify uncertainties in the measurements they make. This book introduces measurement and uncertainty to second and third year students of science and engineering. Its approach relies on the internationally recognised and recommended guidelines for calculating and expressing uncertainty (known by the acronym GUM). The statistics underpinning the methods are considered and worked examples and exercises are spread throughout the text. Detailed case studies based on typical undergraduate experiments are included to reinforce the principles described in the book. This guide is also useful to professionals in industry who are

expected to know the contemporary methods in this increasingly important area.

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