

delt die neueren Typen von faseroptischen Sensoren, die mit Dehnungsmesstreifen und die auf speziellen Effekten beruhenden Geber, die von grosser Aktualität sind, aber besonders auch perspektivisch gesehen.

Im zweiten Teil der Arbeit werden die *hauptsächlichen Probleme hinsichtlich des Störeinflusses der Temperatur*, deren Kompensation, die mit der Verstärkung des metrologischen Signals verbundenen Probleme, das *Verhalten der Messsysteme bei dynamischem Betrieb* und die *Prinzipien des digitalen Messens* behandelt.

Das Buch schliesst mit einem Kapitel, das den Problemen der *Organisation und Kontrolle der Messungen* gewidmet ist.

Neben der Kompetenz und Erfahrung der Autoren, stützt sich die Arbeit auch auf eine reiche Bibliographie, die such auf die einzelnen Kapitel bezieht. Ein Sachregister rundet die Arbeit ab.

Das Buch ist für das ingenieurtechnische Personal bestimmt, das im Bereich des Maschinenbaus, der Mess- und Versuchstechnik arbeitet ist aber auch sehr brauchbar für Studenten technischer Universitäten.

Hanni Scurtu und Virgil Giurcă

EUGENE F. ADIUTORI, *The New Heat Transfer* (Sec. Ed.). Ventuno Press, 1989, 434+XV pp.

The book consists of 44 chapters, divided in five main parts whose brief outlook is given below.

Part 1, *The New Heat Transfer — Fundamentals*, introduces the basic concepts of the new heat transfer — thermal behaviour and thermal driving force — and makes a comparative analysis of various situations in which both approaches are used, in order to show the advantages of the new way of thinking. The latter is supposed to be simpler since it discards the requirement of dimensional consistency and all the contrived parameters, such as heat transfer coefficient, thermal conductivity and emissivity.

Part 2, *The New Electrical Science*, briefly describes the conceptual basis of the new electrical science — the rejection of electrical resistance, inductance, capacitance and the introduction of the electrical behaviour as a more general and flexible idea. The analysis of several purely resistive circuits is presented as an application.

Part 3, *The Generation of Engineering Sciences*, is a discussion of how Fourier, Ohm and Adiutori generated scientific theories and presents a critical comparative description of the methodologies involved, both old and new.

Part 4, *The New Heat Transfer—Experimentation*, concentrates on the methodology used in conducting an experiment in order to establish the behaviour correlations. The author has chosen film cooling as an example of how these correlations are better established using induction instead of a priori deduction. He also discusses thermal behaviour correlation for one phase convection, design correlations and scatter.

Part 5, *The New Heat Transfer — Nonlinear Phenomena*, mainly focuses on the pool boiling curve (P.B.C.) and affiliated problems in order to show that the old heat transfer science cannot cope with highly nonlinear phenomena while the newly proposed one can. The author shows why, in his opinion, the old P.B.C. is not correct. Then he shows how the new P.B.C. must be determined and used as the basis for the thermal analysis of forced convection heat transfer equipment.

This book is a proof of the long war Mr. Adiutori has fought for a number of years against old fashioned ways of thinking in general and in heat transfer in particular. In this latter area, his arguments against „the old science“ are mainly based on the difficulty with which it tackles nonlinear phenomena. The author advocates a „new heat transfer science“, which rejects all contrived parameters and the former prerequisite of dimensional consistency in favour of free form expressions. Their advantage is that they help solving problems in a simpler way by keeping the important parameters separate. The argumentation is coherent and convincing. Less so are the epistemological remarks concerning the role of the experiment and the superiority of induction over deduction as a general methodology in science.

Despite its repetitiveness, the book is readable. Although often mentioned, mathematics is little used throughout the presentation, which certainly contributes to its straightforward and down earth style.

Recommended readership are mechanical, electrical, automotive, aerospace and heat transfer engineers, as well as students, teachers and researchers in these fields. The prerequisites are an open mind and a background knowledge of physics and heat transfer.

Ioan-Cristian Bujor

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