interessante Gebiete der Biotechnologie in Kurzform auf: Stresseinfluss auf das Zellwachstum und die Produktbildung, Hoch-Zell- Dichte- Kultivierung von Mikroorganismen, programmierter Zelltod, bakterielle Magnetosome und biotechnologische Anwendungen – um nur einige zu nennen.
Zu jedem der 20 Kapitel sind ausführliche Referenzen angegeben, die es dem Leser ermöglichen, schnell auf die wichtigsten Literaturstellen zugreifen zu können.
Der vorliegende Band sollte in keiner Fachbibliothek fehlen, damit er den Studenten als Lehrbuch und den Lehrenden zur Ausbildungsvorbereitung zur Verfügung steht.
Das Buch kann allen auf dem Gebiet der Biotechnologie Wirkenden - in der Industrie, den Universitäten und den öffentlichen Einrichtungen - als Nachschlagewerk empfohlen werden.

G. Bunke, Berlin
[BB 3329]

The New Engineering

E.F. Adiutori, Ventuno Press, Naples, FL./U.S.A., 2002, approx. 222 pages, tables and figures, hard cover, $ 24,95, ISBN 0-9626220-8

Most technical books have only the interest of a small group of experts in a specific field. This can not be said of this book which should have the interest of the scientific a well as the engineering world as it covers the fundamentals of the development of the engineering formulas. Adiutori goes back to the development criteria of Fourier who introduced the concept of dimensionless homogeneity for physical engineering phenomena in the "Theory de Chaleur" in 1822. The concept was based on fundamental lemmas (axioms) of the ancient Greek. Neither in Fourier's theory nor in the axioms of the Greek any proof was found for this approach. This challenged Adiutori to rethink the approach of dimensionless homogeneity, which is currently accepted in the scientific world. The attitude that formulas are made dimensionless by the assignment dimensions to constants to fit the concept is sneaked in the scientific world.
Adiutori developed what was called "a new engineering concept".
In his excellent work Adiutori explains the difference between the conventional and new engineering approach for different fields of the engineering science like electricity, heat transfer, stress and strain analysis, fluid flow engineering.
In its simplest form a conventional engineering formulae looks like:
$Y = C * X$ where C is a constant with the dimension of Y/X
In the new engineering the formulae would be $Y = f(X)$
This difference of the new engineering approach is that the engineering phenomena are described and problems are solved with the primary parameters separate and explicit rather than combined and implicit in ratios. The focus is on the behavior of the primary parameters rather than on the ratio of the primary parameters. The advantage of the new engineering method is that it greatly simplifies the solution of non-linear problems. The problems are solved with the variables separated versus the variables combined in conventional engineering.
In the book the application of new versus conventional engineering method is well illustrated for the scientific engineering fields of electricity, heat transfer, mechanical stress, and fluid flow. Striking are the examples about stability phenomena of resistive electrical systems and of heat transfer systems. With simple manual calculations the non-linear behavior is demonstrated and the oscillation and hysteresis effects shown, while the relation of new versus conventional engineering are made visible. Although both approaches give a similar answer it makes the advantages of new engineering clear.
The work is well written and worth reading for engineering scientists. It is applicable in the whole engineering field and it puts ammunition under the drive to develop dimensionless homogeneity formulas.

J.L.A. Koolen, Terneuzen/NL
[BB 3336]

Flow Measurement Handbook

R. C. Baker, Cambridge University Press, Cambridge, 2000, 600 pages, Euro 117,--, ISBN 0-521-48010-8

This book concerns itself with flow measurements primarily of gases and liquids and, as the author suggests, is aimed at users and manufacturers of flowmeters as well as academic researchers. It offers detailed information on the design, calibration, performance, uses, and advantages/disadvantages of all the major types of flowmeters.
The subject area is very well researched while the experience of the author in this field adds weight to the comments and criticisms he makes on the different types of flowmeters as well as industry practice and claims. The author avoids duplication of existing literature or the standards he sites, favoring an extensive list of up to date references which the interested reader can refer to. He also, correctly, places more emphasis on recent developments in flowmeter technology.
The excellent introduction prompts the reader to consider why a flowmeter is actually required. It also contains very useful and careful definitions of terms such as accuracy and repeatability, commonly used by manufacturers to indicate flowmeter performance (sometimes without much care). The following three chapters cover basic fluid dynamic concepts, relevant to fluid flow measurements, guidelines on aspects needed to be considered when selecting a flowmeter as well as currently used flowmeter calibration techniques.
The majority of the book consists of reference chapters devoted to each type of flowmeter, particularly those with strong industrial relevance, such as orifice, venturi, variable area, positive displacement, turbine, swirl, electromagnetic, ultrasonic etc. There is even a chapter on local probes which concentrates on their use for bulk flow measurement. Background equations are given and those suggested by the relevant industrial standards identified; more detailed maths on

