NEW BOOK SERIES

Progress in Colloid and Interface Science

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The book series consists of monographs and edited volumes dedicated to all relevant topics in the field of colloid and interface science, and aims to present the most recent research developments and progress made on particular topics. The volumes in this series will cover fundamental and/or applied subjects.

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Progress in Colloid and Interface Science, Volume 1

Interfacial Rheology

Edited by R. Miller and L. Liggieri

• Forthcoming 2009
• ISBN 978 90 04 17586 0
• Hardback (xx, 685 pp.)
• List price EUR 195.- / US$ 289.-
• Progress in Colloid and Interface Science, 1

This is the first book on interfacial rheology and aims to describe both its history as well as the current, most frequently used experimental techniques for studying dilational and shear rheology of layers at liquid/gas and liquid/liquid interfaces. The book opens with a chapter on the fundamentals of interfacial rheology. All (16) contributions include the theoretical basis for the presented methodologies and experimental examples are given.
This scientific field is relatively young with its beginnings in the sixties. At first the field developed rather slowly due to lack of professional instruments and was the domain of only very few highly specialized laboratories. In the past decade, good equipment has become more widely available and the Web of Science shows a strong increase in both number of articles published and an exponential increase in citations.
This is mainly caused by the fact that interfacial rheology has been understood as one of the main factors in stabilizing liquid films, foams and emulsions. It gives important insight into the composition and structure of interfacial layers, essentially when built up from mixed solutions.
The users of instruments for shear and dilational surface rheology, which are sold in increasing number year by year, therefore require this basic reading and overview of the available methods.

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Progress in Colloid and Interface Science, Volume 2

Bubble and Drop Interfaces

Edited by R. Miller and L. Liggieri

- Forthcoming 2009
- ISBN 978 90 04 xxxxx x
- Hardback (app. 600 pp.)
- List price app. EUR 150.- / US$ 220.-
- Progress in Colloid and Interface Science, 2

This book deals with various methods of interface science based on the particular properties and characteristics of liquid menisci, most of all drops and bubbles. The most versatile tensiometry method these days is the drop profile analysis, a method that became routine only 25 years ago. Today it is the ultimate methodology for liquid interfaces to probe adsorption phenomena and to study mechanical properties of liquid layers. Equipped with a capillary pressure sensor it is the only experiment that can provide data for interfaces between two liquids similar density. Bubble pressure tensiometry developed from an initial qualitative tool in 1851 to the world champion in shortest time dynamic interfacial tensions, suitable to provide information for highly dynamic processes like inkjet printing. Most challenging processes in microfluidics, these days yet a qualitative tool, are based on drops formed in confined geometries.
The number of publications on advanced studies is high and the number of citations in papers that applied these methods is linearly increasing. The book aims at describing the most important experimental methods for characterizing liquid interfaces, such as drop profile analysis, bubble pressure and drop volume tensiometry, capillary pressure technique, and oscillating drops and bubbles. Besides the details of experimental set ups, also the underlying theoretical basis is presented in detail. In addition, a number of applications based on drops and bubbles is discussed, such as rising bubbles and the very complex process of flotation. Also wetting, characterized by the dynamics of advancing contact angles is discussed critically. Special application like a double capillary arrangement for single drop manipulations, and the so-called fibre drop analyzer are presented as excellent examples for the use of drops in interfacial science.

CONTENTS (preliminary list):
G. Loglio et al. - Drop and Bubble profile analysis tensiometry; *S.S. Zholob et al.* - Gauss-Laplace equation – mathematical methods; *L. Liggieri et al.* - Capillary pressure methods; V.B. Fainerman - Maximum bubble pressure tensiometry; *R. Miller et al.* - Drop volume tensiometry; *J.K. Ferri et al.* - Coaxial double capillary in drop profile tensiometry; *F. Ravera* - Oscillating drops and bubbles in solutions; *K. Malysa et al.* - Rising bubbles in solutions; *V.B. Fainerman et al.* - Adsorption at drop and bubble surfaces as method to determine the adsorbed amount; *H. Motschmann et al.* - Optical methods applied to drop surfaces; *V.M. Starov et al.* - Dynamics of wetting; *D. Bastani et al.* - Droplet formation in liquid-liquid systems and mass transfer across interfaces; *N.D. McMillan et al.* - Fibre drop analysis; *A.V. Nguyen et al.* - Particle-bubble interaction in flotation; *A.V. Makievski et al.* - Direct drop-drop interactions in solutions; *R. Boom et al.* - Droplet formation in membrane emulsification; *S. Dorbolo et al.* - Manipulation of Droplets onto a Planar Interface

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