

Challenging the cherished notions of colloidal theory, Barry Ninham and Pierandrea Lo Nostro confront the scientific lore of molecular forces and colloidal science in an incisive and thought-provoking manner. The authors explain the development of these classical theories, discussing amongst other topics, electrostatic forces in electrolytes, specific ion effects and hydrophobic interactions. Throughout the book, they question assumptions, unearth flaws and present new results and ideas. From such analysis, a qualitative and predictive framework for the field emerges; the impact of this is discussed in the latter half of the book, through force behaviour in self-assembly. Here, numerous diverse phenomena are explained, from surfactants to biological applications, all richly illustrated with pertinent, intellectually stimulating examples. With mathematics kept to a minimum, and historic facts and anecdotes woven through the text, combined with charismatic prose, this is a highly accessible, readable treatment for students and researchers in science and engineering.

'Full of wisdom gained from a wealth of experience... a good deal of charm weaves its way through the fabric of the presentation.'

Gerald Pollack, *Bioengineering, University of Washington*

'Very few books have changed a field to such a level that they define a new paradigm. I consider that this book has done so.'

Kåre Larsson, *Camurus Lipid Research Foundation, Ideon Science Park and Lund University*

Barry W. Ninham, a pioneer of modern theory describing molecular forces, interactions and self-assembly, is currently Professor Emeritus of the Department of Applied Mathematics at the Australian National University (ANU). He has been an active researcher for over 40 years, during which time he has authored or co-authored 7 books and more than 400 technical papers. He has received numerous awards, including the Ostwald Award of the German Chemical Society (2005), the SIS Nestle-Mittal Award (2004), and, in 2008, ANU created the Barry Ninham Chair of Natural Sciences Award to recognize his contributions.

Pierandrea Lo Nostro is a Research Fellow in the Department of Chemistry at the University of Florence, from where he received his Ph.D. in Chemical Sciences in 1992. His current research interests include macromolecular self-assembly (polypseudorotaxanes), self-assembly of biocompatible surfactants and specific ion effects (Hofmeister series).

Cover illustration: Fresco by Fra' Beato Angelico, XV century, Museum of San Marco, Firenze. The two images (courtesy of Piero Baglioni) show the original, damaged by the Arno River Floods of 4 November 1966, and the restoration by Dino Dini.

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Ninham and Lo Nostro

Molecular Forces and Self Assembly

In Colloid, Nano Sciences and Biology

Barry W. Ninham and Pierandrea Lo Nostro

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Molecular Forces and Self Assembly

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