## Wetting of Real Surfaces

The revealing of the phenomenon of superhydrophobicity (the "lotus-effect") has stimulated an interest in wetting of real (rough and chemically heterogeneous) surfaces. In spite of the fact that wetting has been exposed to intensive research for more than 200 years, there still is a broad field open for theoretical and experimental research, including recently revealed superhydrophobic, superoleophobic and superhydrophilic surfaces, socalled liquid marbles, wetting transitions, etc. This book integrates all these aspects within a general framework of wetting of real surfaces, where physical and chemical heterogeneity is essential. Wetting of rough/heterogeneous surfaces is discussed through the use of the variational approach developed recently by the author. It allows natural and elegant grounding of main equations describing wetting of solid surfaces, i.e. Young, Wenzel and Cassie-Baxter equations. The problems of superhydrophobicity, wetting transitions and contact angle hysteresis are discussed in much detail, in view of novel models and new experimental data. The second edition surveys the last achievements in the field of wetting of real surfaces, including new chapters devoted to the wetting of lubricated and gradient surfaces and reactive wetting, which have seen the rapid progress in the last decade. Additional reading, surveying the progress across the entire field of wetting of real surfaces, is suggested to the reader. Contents What is surface tension? Wetting of ideal surfaces Contact angle hysteresis Dynamics of wetting Wetting of rough and chemically heterogeneous surfaces: the Wenzel and Cassie Models Superhydrophobicity, superhydrophilicity, and the rose petal effect Wetting transitions on rough surfaces Electrowetting and wetting in the presence of external fields Nonstick droplets Wetting of lubricated surfaces

The revealing of the phenomenon of superhydrophobicity (the "lotus-effect") has stimulated an interest in wetting of real (rough and chemically heterogeneous) surfaces. In spite of the fact that wetting has been exposed to intensive research for more than 200 years, there still is a broad field open for theoretical and experimental research, including recently revealed superhydrophobic, superoleophobic and superhydrophilic surfaces, socalled liquid marbles, wetting transitions, etc. This book integrates all these aspects within a general framework of wetting of real surfaces, where physical and chemical heterogeneity is essential. Wetting of rough/heterogeneous surfaces is discussed through the use of the variational approach developed recently by the author. It allows natural and elegant grounding of main equations describing wetting of solid surfaces, i.e. Young, Wenzel and Cassie-Baxter equations. The problems of superhydrophobicity, wetting transitions and contact angle hysteresis are discussed in much detail, in view of novel models and new experimental data. The second edition surveys the last achievements in the field of wetting of real surfaces, including new chapters devoted to the wetting of lubricated and gradient surfaces and reactive wetting, which have seen the rapid progress in the last decade. Additional reading, surveying the progress across the entire field of wetting of real surfaces, is suggested to the reader. Contents What is surface tension? Wetting of ideal surfaces Contact angle hysteresis Dynamics of wetting Wetting of rough and chemically heterogeneous surfaces: the Wenzel and Cassie Models Superhydrophobicity, superhydrophilicity, and the rose petal effect Wetting transitions on rough surfaces Electrowetting and wetting in the presence of external fields Nonstick droplets Wetting of lubricated surfaces



**139,95 €** 130,79 € (zzgl. MwSt.)

Lieferfrist: bis zu 10 Tage

ArtikeInummer: 9783110581065 Medium: Buch ISBN: 978-3-11-058106-5 Verlag: De Gruyter Erscheinungstermin: 05.11.2018 Sprache(n): Englisch Auflage: 2. Auflage 2018 Serie: De Gruyter Studies in Mathematical Physics Produktform: Gebunden Gewicht: 527 g Seiten: 178 Format (B x H): 175 x 246 mm



Kundenservice Fachmedien Otto Schmidt Neumannstraße 10, 40235 Düsseldorf | <u>kundenservice@fachmedien.de</u> | 0800 000-1637 (Inland)

