

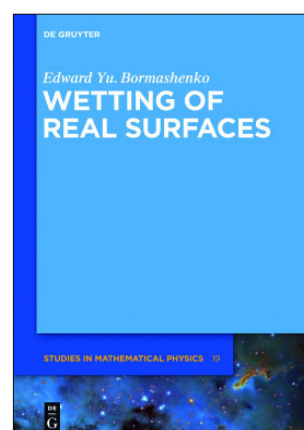
Edward Yu. Bormashenko

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, so-called 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.

Edward Yuri Bormashenko, Ariel University Center of Samaria.



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Genthiner Straße 13 · 10785 Berlin, Germany
T +49 (0)30.260 05-0 · F +49 (0)30.260 05-251 · info@degruyter.com · www.degruyter.com

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