

Superhydrophobic surfaces: a review on fundamentals, applications, and challenges

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Abstract

Superhydrophobicity is the tendency of a surface to repel water drops. A surface is qualified as a superhydrophobic surface only if the surface possesses a high apparent contact angle ($>150^\circ$), low contact angle hysteresis ($<10^\circ$), low sliding angle ($<5^\circ$) and high stability of Cassie model state. Efforts have been made to mimic the superhydrophobicity found in nature (for example, lotus leaf), so that artificial superhydrophobic surfaces could be prepared for a variety of applications. Due to their versatile use in many applications, such as water-resistant surfaces, antifogging surfaces, anti-icing surfaces, anticorrosion surfaces etc., many methods have been developed to fabricate them. In this article, the fundamental principles of superhydrophobicity, some of the recent works in the preparation of superhydrophobic surfaces, their potential

applications, and the challenges confronted in their new applications are reviewed and discussed.

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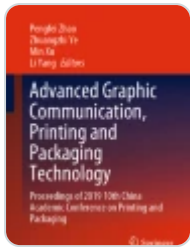
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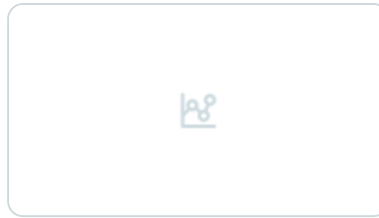
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