عنوان مقاله:

Design and fabrication of highly hydrophobic Mn nano-sculptured thin films and evaluation of surface properties on hydrophobicity

محل انتشار:

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خلاصه مقاله:

The wettability of solid surfaces is importantfrom the aspects of both science and technology. The Mnnano-sculptured thin films were designed and fabricated byoblique angle deposition of Mn on glass substrates at roomtemperature. The obtained structure was characterized byfield emission scanning electron microscopy and atomicforce microscopy. The wettability of thin films sampleswas investigated by water contact angle (WCA). The4-pointed helical star-shaped structure exhibits hydrophobicitywith static WCAs of more than 133 for a 10-mgdistilled water droplet. This sample also shows the rosepetal effect with the additional property of high adhesion.The Mn nano-sculptured thin films also act as a stickysurface which is confirmed by hysteresis of the contactangle obtained from advancing and receding contact anglesmeasurements. Physicochemical property of liquid phasecould effectively change the contact angle, .and polar solventsin contact with hydrophobic solid surfaces do notnecessarily show high contact angle value

کلمات کلیدی:

Sculptured thin films Hydrophobicity Surface free energy Cassie–Baxter state Wenzel state Petal effect