

Abstract Submitted  
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**Facile fabrication of super-hydrophobic surfaces with 3D pillar structures** SHENGJIE ZHAI, HUI ZHAO, YINGTAO JIANG, University of Nevada Las Vegas — Super-hydrophobic surfaces have attracted growing interest due to their unique properties, including drag reduction, facilitation of heat transfer, self-cleaning, anti-corrosion, anti-sticking, and anti-contamination. However, the method of fabricating super-hydrophobic surfaces with regular 3D micro/nano pillars structures is still complicated. Here we present a simple, reliable, and low-cost fabrication method which can create complex 3D structures. Briefly, the commercial nanostamping products like CD, DVD, and bluray disc serve as the PDMS mold. The pit size (LxWxH) of CD, DVD, and Blu-ray is  $0.8\mu\text{m} \times 0.15\mu\text{m} \times 0.1\mu\text{m}$ ,  $0.4\mu\text{m} \times 0.15\mu\text{m} \times 0.1\mu\text{m}$ , and  $0.15\mu\text{m} \times 0.15\mu\text{m} \times 0.1\mu\text{m}$ . The PDMS surface with the relevant structures can be directly replicated from the molds by the soft lithography technology. The precise geometric structures including height, width, and density of pillar arrays can be readily controlled by using different optical discs. The contact angle is measured about 136-140 degree. We also study the relationship between the contact angle and different feature size. Finally, we measure the slip length for different structures

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