Sliding and Rolling Behavior of Water Droplets on an Ordered Nanoball Matrix Fluorocarbon Polymer Layer under Simulated Weather Conditions

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PII: S0039-6028(18)30222-X
DOI: 10.1016/j.susc.2018.05.002
Reference: SUSC 21251

To appear in: *Surface Science*

Received date: 7 March 2018
Revised date: 29 April 2018
Accepted date: 1 May 2018

Please cite this article as: Xieqiang Jiang , Jie Wan , Haoxu Han , Yiping Wang , Kang Li , Qingjun Wang , Sliding and Rolling Behavior of Water Droplets on an Ordered Nanoball Matrix Fluorocarbon Polymer Layer under Simulated Weather Conditions , *Surface Science* (2018), doi: 10.1016/j.susc.2018.05.002

Highlights

- The internal fluidity, characterized by the ratio of internal rolling and slipping was measured with the help of the image-capture system under the room temperature and humidity.
- With the growth of the porous diameter of the AAO substrates, the static contact angle increased while the sliding acceleration of the droplet decreased by 33% to 50% under room conditions (25℃, 30% RH).
- The hydrophobicity was weakened and the sliding acceleration underwent a 25% to 50% loss under extreme environment condition (5℃ and 80%RH).