

Abstract Submitted
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Imbibition dynamics on surfaces of legs of a small animal and on artificial surfaces mimicking them MARIE TANI, Department of Physics, Faculty of Science, Ochanomizu University, DAISUKE ISHII, Center for Fostering Young and Innovative Researchers, Nagoya Institute of Technology, SHUTO ITO, Department of Life and Materials Engineering, Faculty of Engineering, Nagoya Institute of Technology, TAKAHIKO HARIYAMA, Department of Biology, Hamamatsu University School of Medicine, MASATSUGU SHIMOMURA, WPI-Advanced Institute for Materials Research (WPI-AIMR), Tohoku University, KO OKUMURA, Department of Physics, Faculty of Science, Ochanomizu University — Recently, imbibition of textured surfaces covered with homogeneous micro-pillar arrays has been actively studied partly because of the potential for transport of a small amount of liquids. In most cases, the dynamics is described by the Washburn law, in which the imbibition distance scales with the square root of elapsed time, while a different scaling law has been recently found [1]. In this study, we studied imbibition on legs of a small animal that absorbs water via its legs [2] to find yet another scaling law. Furthermore, imbibition of artificial surfaces mimicking the leg surface was found to be described well by a composite theory.

[1] Obara and Okumura, Phys. Rev. E 86, 020601R (2012).

[2] Ishii, Horiguchi et al. Sci. Rep. 3, 3024 (2013).

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