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Surface mediated liquid transport on nanotube MIN-FENG YU, Univ. of Illinois at Urbana-Champaign, KYUNGSUK YUM — The surface mediated liquid transport on nanotubes was studied using a nanotube-based liquid transport system. Microscale liquid droplets were formed and transferred to nanotubes using the liquid transport system integrated with a nano-manipulator. If the spreading parameter S is larger than a threshold value S_c, the liquid spontaneously flows out of the liquid droplet through a thin precursor film formed along the nanotube surface. The liquid transport on nanotube surfaces was studied *in situ* by measuring the volume flow rate which was obtained from a direct observation of the droplet. The flow rate dependence on the size of nanotubes and surface energy were also investigated. The surface mediated liquid transport phenomenon can be exploited for the development of nanoscale liquid transport system for nanofabrication and nanoscale devices for biological and chemical applications. Reference: Kyungsuk Yum and Min-Feng Yu, Surface-mediated liquid transport through molecularly thin liquid films on nanotubes, Phys. Rev. Lett. 95, 186101 (2005)

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