Abstract Submitted for the DFD13 Meeting of The American Physical Society

Multiscale liquid drop impact on wettable and textured surfaces SAMANEH FAROKHIRAD, Department of Mechanical Engineering, City College of City University of New York, RUI ZHANG, JOEL KOPLIK, Benjamin Levich Institute and Department of Physics, City College of City University of New York, TAEHUN LEE, Department of Mechanical Engineering, City College of City University of New York — We present the impact of microscopic liquid droplets on solid surfaces which are flat, or pillared, with either homogeneous interactions or crossshaped patterns of wettability using numerical simulations. The focus is on relatively low impact velocities leading to spreading or bouncing drops, rather than splashing. Lattice Boltzmann and Molecular dynamics methods are used for nanometer-sized and continuum droplets, respectively, and the results of the two methods are compared in terms of scaled variables. In most situations we find similar droplet behavior at both length scales. The agreements between the methods are reasonable at low impact velocities on wettable surfaces while some discrepancies are observed for strongly hydrophobic surfaces and for higher velocities.

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Date submitted: 02 Aug 2013

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