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Bhagya Athukorallage* (bhagya.athukorala@ttu.edu), Broadway and Boston, Lubbock, TX 79409-1042, and **Ram Iyer**, Broadway and Boston, Lubbock, TX 79409. *Investigation of energy losses due to contact angle hysteresis in capillary effect.*

The presence of inhomogeneities on solid substrates leads to a range of stable contact angle values for a given solid-liquid system, which is referred to as the contact angle hysteresis. It is well known that the motion of a liquid on a non-ideal surface involves dissipation of energy due to the contact angle hysteresis and the viscosity of the fluid involved. In this research, we study the former mechanism that leads to the dissipation of energy by considering two types of capillary geometries. Specifically, a liquid drop on a solid substrate and a liquid column in a capillary tube. Analytical formulas for both liquid interfaces are obtained using energy minimization approach. Here, the competing energy terms include the meniscus surface energy, adhesion energy, and volume energy due to gravitation. Our computations suggest that the hysteresis losses result due to both capillary pressure and the wet adhesion. Further, we observe that the dominant cause for hysteresis losses is the capillary pressure arising from the meniscus formation. (Received September 17, 2014)