Moving Droplets on a Wall[1] DANIEL CHIN, NYU, Shanghai, MICHAEL YUE LI, NYU, CHARLES PUELZ, Baylor College of Medicine, PEJMAN SANAEI, New York Inst of Tech — In this work, we use the penalty Immersed Boundary Method (pIBM) to simulate the movement of liquid droplets hanging on a vertical wall. We propose a 2D numerical method based on pIBM to tackle the moving contact line problem. Note that the vertical wall is hydrophilic and does not allow slip in most cases, however, in reality we do observe droplets advance on hydrophilic surfaces. We use Lagrangian markers to represent the droplet interface and compute surface tension. The forcing scheme is designed to unify both the surface tension and the unbalanced Young's forces at the contact point into one general equation. We also employ a dynamic re-sampling technique to ensure the uniform distribution of Lagrangian markers.

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