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**A Numerical Dynamic Contact Angle Model Applied to Droplets Sliding Down An Incline** SHAHRIAR AFKHAMI, MARKUS BUSSMANN, University of Toronto — A numerical dynamic contact angle model based on a well-known hydrodynamic theory is developed for the imposition of a boundary condition at the contact line. The efficacy of this new model is demonstrated via 3D examples of a viscous droplet sliding down a partially wetting incline. As experimentally observed (Phys. Rev. Lett. 87 (2001), 036102), when the inclination angle increases, the rear of the drop becomes elongated until it develops a "corner" which eventually breaks up into smaller droplets, while the leading edge of the drop remains rounded. Using the open source code "Gerris" (http://gfs.sf.net), we present the results of droplets sliding on an inclined plane. A similar behaviour (asymmetry between advancing and receding contact lines) is demonstrated. Results are in qualitative agreement with experimental observations. The role of surface inclination on the distribution of the dynamic contact angle along the droplet perimeter is also presented.

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