DEWETTING OF POLYMER MICRODROPLETS WITH STRONG SLIP.

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Classical hydrodynamic models predict that infinite work is required to move a three-phase contact line over a the surface of a solid. Assuming a slip boundary condition, in which the liquid slides against the solid, such an unphysical prediction is avoided. Motivated by the results of dewetting experiments with spherical cap-shaped polystyrene microdroplets [1], we study the relaxation of the droplet shape to its new equilibrium using a boundary integral approach [2]. Besides a velocity independent microscopic contact angle we assume that the dynamics of the liquid is described by the steady Stokes equation with a Navier slip boundary condition at the solid. We find that slip has a strong influence on the evolution of the droplet contour, both on the transient nonspherical shapes and the contact line dynamics. The scaling of the contact line radius at early and late time observed in our numerical solutions are in good agreement with scaling predictions for the evolution of the droplet contour as well as the experimental results .

ACKNOWLEDGEMENTS:

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