

Abstract Submitted
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A closed-form analytical solution for both hanging and sitting droplets¹ JUAN MANUEL GOMBA, Insitute of Physics Arroyo Seco, UNCPBA - Argentina, CARLOS ALBERTO PERAZZO, Dept. Phys. and Chem, University Favalaro - Argentina — We present a new analytical solution for the shape of both hanging and sitting droplets under the effects of gravity, surface tension and molecular forces arising between the liquid and the substrate. These molecular London/van der Waals and electrostatics forces, which are described by means of potential functions, are responsible for the existence of a nanometric precursor film that surrounds the droplet. The analytical solution describes pancake-type profiles and also droplets elongated in the vertical direction. We find novel expressions that relate microscopic and nanoscopic aspects, such as the strength of the molecular forces and the thickness of the nanometric precursor film, with macroscopic quantities, e. g., the cross sectional area, the height and the width of the droplet. Note: No pancakes will be served.

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