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Liquid Droplets on a Highly Deformable Membrane RAFAEL SCHULMAN, KARI DALNOKI-VERESS, McMaster University — We present measurements of the deformation produced by micro-droplets atop thin elastomeric and glassy free-standing films. Due to the Laplace pressure, the droplets deform the elastic membrane thereby forming a bulge. Thus, there are two angles that define the droplet/membrane geometry: the angle the liquid surface makes with the film and the angle the deformed bulge makes with the film. The contact line geometry is well captured by a Neumann construction which includes contributions from interfacial and mechanical tensions. Finally, we show that a droplet atop a film with biaxial tension assumes an equilibrium shape which is elongated along the axis of high tension.

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