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**Deformation of Thin Free-standing Films with Sessile Droplets Through the Glass Transition** ADAM FORTAIS, RAFAEL SCHULMAN, KARI DALNOKI-VERESS, McMaster University — Droplets on a rigid substrate will form a contact angle determined by interfacial tensions according to Young's law. Likewise, the Laplace pressure of a droplet will deform a liquid substrate, and the contact line geometry can be determined through a Neumann construction. We explore the intermediate case of micro-droplets placed on thin, highly compliant, free-standing films. The Laplace pressure of the droplet deforms the free-standing film, creating a spherical bulge. The film's tension is modulated by changing temperature continuously from well below the glass transition into the melt state of the film. The contact angle of the liquid droplet with the undeformed film as well as the angle of the bulge with the film is measured and compared to the contact angles predicted by a force balance at the contact line.

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