

Abstract Submitted  
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**Self Wrinkling of UV-cured Polymer Films** ALFRED J. CROSBY,  
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of Massachusetts, Amherst — We report the formation of surface wrinkle patterns  
associated with the curing of polymer films. Taking advantage of a thin layer of liquid  
on the surface of a polymer film, we swell the underlying substrate-constrained film,  
resulting in surface wrinkles due to the resulting compressive stress. The wrinkles  
evolve from isolated dimples at short times to elongated wrinkles with a defined  
length. The wavelength of the wrinkles is proportional to the film thickness and  
is stable at long times. The wrinkle amplitude increases with time after curing due  
to diffusion of the liquid, reaching a state of equilibrium swelling at long times.  
The characteristic time for amplitude evolution increases with increasing crosslink  
density.

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