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Straining soft colloids in aqueous nematic liquid crystals[1] SAVERIO SPAGNOLIE, PETER MUSHENHEIM, JOEL PENDERY, DOUGLAS WEIBEL, NICHOLAS ABBOTT, University of Wisconsin-Madison — Liquid crystals (LCs) are anisotropic, viscoelastic fluids that can be used to direct colloids into organized assemblies with unusual optical, mechanical, and electrical properties. In past studies, the colloids have been sufficiently rigid that their individual shapes and properties have not been strongly coupled to elastic stresses imposed by the LCs. We will discuss how soft colloids (micrometer-sized shells) behave in LCs. We reveal a sharing of strain between the LC and shells, resulting in formation of spindle-like shells and other complex shapes. These results hint at previously unidentified designs of reconfigurable soft materials with applications in sensing and biology. Related effects relevant to biolocomotion will also be touched upon.

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