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Formation of Liquid Crystal Elastomer Microparticles CHANJOONG KIM, HUAN YAN, SOUPTIK MUKHERJEE, PAUL LUCHETTE, PETER PALFFY-MUHORAY, Liquid Crystal Institute and Chemical Physics Interdisciplinary Program, Kent State University, Kent, OH 44242, USA — Liquid crystal elastomer (LCE) combines the properties of rubber elasticity and anisotropic properties of liquid crystalline materials. In particular, LCE has a potential to exhibit interesting properties like electric polarization, ferroelectricity and piezo-electricity. Thin films, fibers and even balloons of LCE using techniques such as spin coating, electro-spinning and in cells have been reported by many groups before. Using microfluidics technique followed by photo-polymerization, we produce uniform spherical LCE microspheres with diameter of 20 - 85 μm . Compression of the LCE microspheres generates a characteristic director configuration. The elastomers may also reveal interesting magnetic and electrical properties due to the intrinsically anisotropic nature of liquid crystalline materials.

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