## Elastomeric Nematic Colloids, Colloidal Crystals and Microstructures with Complex Topology

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**Fig. S1** Fabrication of free-standing colloidal elastomeric microrings within a LC cell. (a) Schematic showing how the printed particles are placed in the middle of the cell, with a distance h from the bottom substrate. The particle is represented by the blue rectangle, the polymerizable LC host by the light blue background, and the glass substrates by the shaded rectangles. (b) Micrographs of particles consisting of only one ring. The shape cannot be maintained because of distorted polymerized structure from swelling. (c, d) To strengthen the particles and thus maintain their shape, particles fabricated by guiding the focused laser beam along five concentric circles (c) or ellipses (d) are printed. Varying h up to 50 micrometers does not result in observable difference in particle shape.



**Fig. S2** Thermal actuation of LCE microstructures in the LC host. Microrings are placed following the pattern of square lattices but with slight overlap. This resulted in a structure where the repeating units are not freely moving but instead, bound together into a one-piece microstructure.