

Abstract Submitted
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Stripes or Checkerboards: Distinguishing Patterns of Self-Assembled Water Drops to Chiral Structures LAURA ADAMS, Harvard, SAM OCKO, Stanford Univeristy, DAVID WEITZ, Harvard — A robust route for the biased production of single-handed chiral structures has been found in generating non-spherical, multi-component double emulsions, drops within drops, using glass microfluidic devices. Driving the minimization of surface energy are capillary forces that cause linear chains of encapsulated water drops to self- assemble into three-dimensional configurations with a well-defined preference to one type of handedness; thus, breaking left -right symmetry. In two dimensions, the encapsulated drops form patterns of stripes or checkerboards that are captured with a high speed camera. We quantify the dynamics of the evolving structures by measuring the second moment of the mass distribution and their growth and evolution rates. These new self-assembled soft structures are highly stable and open the door for a wide range of exotic configurations.

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