

Abstract Submitted
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Flat-twisted-helical transition in composed gel sheets and self assembled chiral molecules¹ SHAHAF ARMON, ERAN SHARON, Hebrew University, Jerusalem, EFI EFRATI, University of Chicago, RAZ KUPFERMAN, Hebrew University, Jerusalem — We recently presented a new chirality creating mechanism in elastic strips. In such frustrated bodies, the chiral configuration is determined in a competition between bending and stretching energies, controlled by a dimensionless parameter $\tilde{w} = w\sqrt{k/t}$, in which w is the strip's width, t – its thickness and k - the spontaneous curvature. I will show the geometrical and mechanical equivalence between such elastic strips and self assembled molecules made of twisted elements. I will also show experiments in responsive gels, showing how a continuous variation in \tilde{w} yields an ordered shape transition from flat to twisted and helical shapes and to tubes. Similar transitions have been observed in self assembled macromolecules.

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