

Abstract Submitted  
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**Entropy driven formation of a chiral liquid crystalline phase of helical rods** ZVONIMIR DOGIC, Rowland Institute at Harvard University, EDWARD BARRY, ZACH HENSEL, MICHAEL SHRIBAK, Marine Biological Laboratory, Woods Hole, RUDOLF OLDENBOURG, Marine Biological Laboratory, Woods Hole — We study the liquid crystalline phase behavior of a concentrated suspension of helical flagella isolated from *Salmonella typhimurium*. With increasing concentration, a suspension of helical flagella undergo an entropy driven first order phase transition to a liquid crystalline state having a novel chiral symmetry. Flagella are prepared with different polymorphic states, some of which have a pronounced helical character while others assume a rod-like shape. We show that the static phase behavior and dynamics of chiral helices are very different when compared to simpler achiral hard rods.

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