

Abstract Submitted  
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**Parity breaking in nematic tactoids of lyotropic chromonic liquid crystals**<sup>1</sup> LUANA TORTORA, OLEG D. LAVRENTOVICH, Liquid Crystal Institute, Kent State University — In many colloidal systems, an orientationally ordered nematic phase emerges from the isotropic melt in the form of spindle-like birefringent tactoids. In cases studied so far, the tactoids always reveal a mirror-symmetric non-chiral structure, even when the building units are chiral, as in the case of tobacco mosaic virus [1] and fd virus [2]. We report on parity breaking in the nematic tactoids formed in molecularly non-chiral polymer-crowded solutions of lyotropic chromonic liquid crystals. The effect is manifested by twist of the director and optical activity. Fluorescent confocal polarizing microscopy reveals that the tactoids nucleate at boundaries of cells. We explain the chirality induction by the effect of geometrical anchoring [3] and by increase of the splay elastic constant in condensed nematic regions of crowded solutions.

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<sup>1</sup>NSF DMR MWN 0710544

Oleg D. Lavrentovich  
Liquid Crystal Institute, Kent State University

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