

Abstract Submitted  
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**Polyhedral Liquid Crystalline Vesicles**<sup>1</sup> MARK BOWICK, Syracuse University — Vesicles with internal liquid-crystalline order can assume a variety of shapes depending on the ratio of the Frank moduli to the bending rigidity. Using both analytic and numerical tools one can show that the possible low free energy morphologies include nano-fibers, faceted tetrahedral vesicles, ellipsoidal vesicles and cylindrical vesicles. The tetrahedral vesicle is a particularly fascinating example of a faceted liquid-crystalline membrane. Faceted liquid vesicles may lead to the design of supra-molecular structures with tetrahedral symmetry and new classes of nano-carriers.

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Mark Bowick  
Syracuse University

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