

Abstract Submitted  
for the MAR17 Meeting of  
The American Physical Society

**A chiral minimal surface from space group symmetries**

SHASHANK MARKANDE, School of Physics, Georgia Institute of Technology, Atlanta, Georgia, GERD E. SCHRÖDER-TURK, School of Engineering and IT, Mathematics and Statistics, Murdoch University, Murdoch, Australia, VANESSA ROBINS, Applied Mathematics, Research School of Physics and Engineering, The Australian National University, Canberra, Australia, ELISABETTA A. MATSUMOTO, School of Physics, Georgia Institute of Technology, Atlanta, Georgia — Triply periodic minimal surfaces form the interface between bicontinuous structures in diblock copolymers and lipid bilayers in the membranes of certain organelles. Here we study a one parameter family of chiral triply periodic minimal surfaces which partition space into two disjoint regions, enclosing a quartz network on one side and its dual qzd network on the other. The three dimensional orbifold of the underlying space group,  $P6_22$ , is used to analyze the symmetries of the surface. The symmetry elements combined with the flat points of the surface are used to obtain a regular parametrization known as the Weierstrass-Enneper representation.

Shashank Markande  
School of Physics, Georgia Institute of Technology, Atlanta, Georgia

Date submitted: 29 Nov 2016

Electronic form version 1.4