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Self-folding membranes GALEN T. PICKETT, Dept. of Physics and Astronomy, CSULB — I consider an elastic membrane treated so that one side is solvophobic, and the other is solvophillic. The membrane crumples itself into a complex, compact form under specific, strong solvent interactions. The form of the collapsed membrane is strongly affected by scoring a tessellating network of ordered creases into the fabric of the membrane. The ordered tessellated collapsed structure exhibits several interesting mechanical properties, such as a traction-induced spontaneous curvature and a negative Poisson ratio.

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