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Thin-shell model for faceting of multicomponent elastic vesicles RASTKO SKNEPNEK, MONICA OLVERA DE LA CRUZ, Northwestern University — We use a discretized version of a thin elastic shell model to show that a two-component elastic vesicle can lower its energy by faceting into a wide variety of polyhedral shapes. The elastic shell model allows us to completely remove effects of the topological defects necessarily present in spherical topology. Therefore, we show that the faceting mechanism of multicomponent elastic vesicles is fundamentally different than the familiar defect-driven buckling into icosahedra. We present a detailed gallery of faceted shapes and discuss how the interplay between bending and stretching energies leads to faceting. Present work extends our recent study of the faceting of a two-component shell in the presence of topological defects [1]. [1] G. Vernizzi, R. Sknepnek, M. Olvera de la Cruz, Proc. Natl. Acad. Sci. USA 108, 4292 (2011).

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