Elasticity using Nambu-Goldstone modes of isometries SALEM AL MOSLEH, CHRISTIAN SANTANGELO, ARTHUR EVANS, University of Massachusetts, Amherst, MATERIALS GEOMETRY GROUP, UNIVERSITY OF MASSACHUSETTS, AMHERST TEAM — Thin shells have a natural separation in energetic scales between bending and stretching. Owing to the prohibitively high cost for stretching, the elastic energy is approximately invariant under isometric deformations, associated with symmetry there will be Nambu-Goldstone modes which can be described by an effective theory in the diffuse deformation limit. We apply this method to study small deformations of elastic shells, and to the evolution of growing shells under an imposed swelling pattern as well as the effect of imperfection in the swelling pattern on bending and stretching rigidities.

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