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Shells on lattice-mismatched colloidal spheres, cubes, and peanuts MELINDA SINDORO, STEVE GRANICK, Univ of Illinois - Urbana — Cavities form spontaneously due to geometrical frustration when crystalline shells is gradually grown on non-linear surfaces. This we conclude experimentally from growing lattice mismatched shells on colloidal spheres, cubes, and peanuts, all of them providing different local curvature. According to the core shape, the underlying interfacial curvature promotes different cavity formation which we can follow over time. The resulting spatio-temporal heterogeneity adds up to a propagation of an increasingly strong mechanical stress at the core-shell interface, inducing core-shells transformation to yolk-shells.

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