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Morphology of Osmotically-Driven Surface Buckles DEREK BREID, ALFRED CROSBY, University of Massachusetts — The ordering of osmotically-driven surface buckles on an elastically-supported stiff plate depends strongly upon the dominant stresses acting on the surface during formation. For example, conditions which lead to buckle initiation at the center of the plate yield hexagonal dimple arrays characteristic of an isotropic surface stress, while buckles initiated at the edges align radially, indicating a theta-dominated state of compressive stress. Here, we present experimentally-observed buckling morphologies resulting from a variety of surface geometries, as well as Finite Element Modeling results which provide insight into the specific evolution of stresses which led to the formation of these morphologies.

Derek Breid
University of Massachusetts

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