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Experimental Study of Shape and Energy Scaling in Hyperbolic Non-Euclidean Plates YAEL KLEIN, EFI EFRATI, ERAN SHARON, The Hebrew University — Hyperbolic elastic Non-Euclidean plates are plates whose two dimensional target metric prescribes a negative Gaussian curvature. The equilibrium configurations of such, axi-symmetric, bodies are known to consist of multi-scale wave cascades. Using environmentally responsive gels, we experimentally study the change of the wavy patters with the thickness of the discs and with their radius. We provide the scaling of the number of nodes with respect to these parameters and show that, as the disc thickness decreases, the bending content of the discs sharply increases. This increase is compensated by a reduction of stretching content, due to the refinement of scales.

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