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Shape Selection in Non-Euclidean Plates JOHN GEMMER, SHANKAR VENKATARAMANI, University of Arizona, ERAN SHARON COLLABORATION — We present a theoretical study of free non-Euclidean plates with a disc geometry and a prescribed metric that corresponds to a constant negative Gaussian curvature. We take the equilibrium configuration taken by the these sheets to be a minimum of a Föppel Von-Kàrmàn type functional in which configurations free of any in plane stretching correspond to isometric embeddings of the metric. We show for all radii there exists low bending energy configurations free of any in plane stretching that obtain a periodic profile. The number of periods in these configurations is set by the condition that the principle curvatures of the surface remain finite and grows approximately exponentially with the radius of the disc.

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