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The Buckling-Fracture Transition in Non-Euclidean Plates ERAN SHARON, YAEL KLEIN, The Hebrew University — Non-Euclidean Plates (NEP) are thin elastic plates, in which lateral equilibrium distances of the material are described by a non-Euclidean reference metric. Previous studies showed that such plates buckle spontaneously – while free of external constraints. In the thin limit the geometry of the buckled configurations approaches the reference metric. In this talk we show the existence of a new, *buckling to fracture*, transition in these plates. Depending on the parameters of the system, NEP might undergo fracture instability instead, or together with, buckling instability. We propose the scaling of this transition and verify it experimentally. Our observations lead us to propose an intrinsic geometrical description of fracture, which is consistent with, but different from Linear Elastic Fracture Mechanics.

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