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Quasiconformal Mappings via Circle Packing: a Conjecture

Suppose K is a triangulation of a region G in the plane. Associated with K is a maximal packing P in the unit disc \mathbb{D} , that is, a configuration of circles with the tangency pattern encoded in K . In particular, P gives an embedding K' of K in \mathbb{D} . Intensive experiments suggest that when K is an appropriately random triangulation of G , then the piecewise affine map $f : K' \rightarrow K$ approximates the conformal map from \mathbb{D} to G . If this is the case, then by biasing the random triangulation K using the ellipse field for a Beltrami coefficient μ , one should be able to approximate the quasiconformal mapping from \mathbb{D} to G with dilatation μ . Conjectured results will be illuminated by visual experiments.