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Local Elastic Fields in Granular Solids DIETRICH WOLF, JENS BOBERSKI, LOTHAR BRENDEL, University of Duisburg-Essen — The modeling of elastic properties of disordered or granular solids requires a theory of elasticity that takes non-affine deformations into account. Using a linearized force law the non-affine elastic deformations are calculated. Base on the microscopically exact expressions for the local strain and stress fields (I. Goldhirsch, Granular Matter 12, 239 (2010)) a way to calculate maps of the local linear elastic constants for frictional granular packings is presented. The elastic constants are found to be scale and system size independent within an appropriate parameter range.

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