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Rearrangements in 2D packings MERLIJN VAN DEEN, JOHANNES SIMON, MARTIN VAN HECKE, Kamerlingh Onnes Lab, Universiteit Leiden, SIMON DAGOIS-BOHY, LEOPOLDO GOMEZ, BRIAN TIGHE, ZORANA ZERAVCIC, Instituut-Lorenz, Universiteit Leiden — Using computer simulations of frictionless, harmonic, packings, we have investigated the effects of global shear deformations on a local scale. We have focused on the making and breaking of contacts between particles, as a change in the contact network signals a departure from linear response. We show the deformation at which the first contact change happens can be predicted, using simple scaling arguments, from the initial pressure and the number of particles. In addition, we show the also probability of creating versus breaking a contact can be understood. Finally, we are able to show the locality of the rearrangements in the packing.

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