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The Jamming transition in photoelastic disks: local perturbations versus diverging responses CORENTIN COULAIS, University of Leiden, Leiden, The Netherlands, ANTOINE SEGUIN, Paris Sud University, Paris, France, OLIVIER DAUCHOT, ESPCI, Paris, France, CEA SACLAY/SPEC/SPHYNX - FAST LAB, PARIS SUD UNIV. TEAM, ESPCI - CEA SACLAY/SPEC/SPHYNX COLLABORATION — We investigate the spatial response of the contact network to local perturbations in experiments on horizontal packings of bidisperse photo-elastic soft disks close to jamming. First, an intruder is pulled at constant force through the packing: while the overall contact number remains unchanged, the contact network geometry drastically changes and develops a strong asymmetry between the front and the back of the intruder. Second, an intruder is inflated inside the packing leading to a global increase of the contact number. While particle rearrangements become increasingly large as the unjamming transition is approached, there are only few contact changes in the packing. We discuss these results in the light of a recent work [1] on fluctuations where a similar link between dynamical heterogeneities and contact fluctuation has been reported.

[1] C. Coulais, R. P. Behringer, and O. Dauchot, arXiv eprint: 1202.5687 (2012).

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