

Abstract Submitted
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Jamming Percolation in Three Dimensions EIAL TEOMY, Tel Aviv University, ANTINA GHOSH, Weizmann Institute, YAIR SHOKEF, Tel Aviv University — We introduce a three-dimensional kinetically-constrained model for jamming and glasses [1], and prove that the fraction of frozen particles is discontinuous at the directed-percolation critical density. In agreement with the accepted scenario for jamming- and glass-transitions, this is a mixed-order transition; the discontinuity is accompanied by diverging length- and time-scales. Because one-dimensional directed-percolation paths comprise the backbone of frozen particles, the unfrozen rattlers may use the third dimension to travel between their cages. Thus the dynamics are diffusive on long-times even above the critical density for jamming. Our new model is a non-trivial extension of the two-dimensional spiral model [2].

- [1] A. Ghosh, E. Teomy, and Y. Shokef, *Europhys. Lett.* **106**, 16003 (2014).
[2] G. Biroli and C. Toninelli, *Eur. Phys. J. B* **64**, 567 (2008).

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