Abstract Submitted
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Percolation in Granular Material MARK ZIMMERMAN, D.T. JACOBS, Department of Physics, The College of Wooster, Wooster OH 44691 — Percolation was studied by measuring the resistance to the flow of electricity through a system of conducting and insulating spheres. The percolation threshold was measured on three different size systems by varying the number fraction of conducting spheres in the mixture of 3 mm diameter steel shot and glass spheres as well as 1 mm silver coated glass spheres and uncoated spheres. A dynamic pressure effect was observed in the random-packed system when using the less conducting steel shot but not with the silver coated spheres. Results have qualitative and quantitative similarities to published experimental and simulation work on comparable systems going from 2D to 3D. The percolation threshold observed will be discussed and compared to other experiments as well as simulations. We acknowledge support from NSF DMR-0649112.

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