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Vibrations in materials with granularity

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BIBLIOGRAPHY

- [1] N. W. Ashcroft and D. N. Mermin, *Solid state physics* (Saunders College Publishing, USA, 1976).
- [2] P. Sheng, *Introduction to wave scattering, Localization and Mesoscopic Phenomena* (Academic Press Inc., USA, 1995).
- [3] P. Sheng, *Scattering and Localization of Classical Waves in Random Media* (World Scientific, ADDRESS, 1990).
- [4] P. W. Anderson, Phys. Rev. **109**, 1492 (1958).
- [5] S. John, H. Sompolinsky, and M. J. Stephen, Phys. Rev. B **27**, 5592 (1983).
- [6] J. Duran, *Sands, Powders, and Grains: An Introduction to the Physics of Granular Materials* (Springer, New York, 2000).
- [7] C. S. O'Hern, L. E. Silbert, A. J. Liu, and S. R. Nagel, Phys. Rev. E **68**, 011306 (2003).
- [8] D. M. Mueth, H. M. Jaeger, and S. R. Nagel, Phys. Rev. E. **57**, 3164 (1998).
- [9] M. E. Cates, J. P. Wittmer, J.-P. Bouchaud, and P. Claudin, Phys. Rev. Lett. **81**, 1841 (1998).
- [10] H. A. Makse, N. Gland, D. L. Johnson, and L. M. Schwartz, Phys. Rev. Lett. **83**, 5070 (1999).
- [11] H. A. Makse, D. L. Johnson, and L. M. Schwartz, Phys. Rev. Lett. **84**, 4160 (2000).
- [12] L. E. Silbert, G. S. Grest, and J. W. Landry, Phys. Rev. E **66**, 061303 (2002).
- [13] L. E. Silbert, D. Ertas, G. S. Grest, T. C. Halsey, and D. Levine, Phys. Rev. E **65**, 031304 (2002).
- [14] H. A. Makse, N. Gland, D. L. Johnson, and L. Schwartz, Phys. Rev. E **70**, 061302 (2004).
- [15] C. F. Mouzarkel, H. Pacheco-martinez, J. C. Ruiz-Suarez, and A. M. Viales, Granular matter **6**, 61 (2004).

-
- [16] J. H. Snoeijer, T. J. H. Vlugt, M. van Hecke, and W. van Saarloos, *Phys. Rev. Lett.* **92**, 054302 (2004).
- [17] J. H. Snoeijer, T. J. H. Vlugt, W. G. Ellenbroek, M. van Hecke, and J. M. J. van Leeuwen, *Phys. Rev. E* **70**, 061306 (2004).
- [18] L. E. Silbert, A. J. Liu, and S. R. Nagel, *Phys. Rev. Lett.* **95**, 098301 (2005).
- [19] E. I. Corwin, H. M. Jaeger, and S. R. Nagel, *Nature* **435**, 1075 (2005).
- [20] M. Wyart, S. R. Nagel, and T. A. Witten, *Europhys. Lett.* **72**, 486 (2005).
- [21] S. Henkes and B. Chakraborty, *Phys. Rev. Lett.* **95**, 198002 (2005).
- [22] H. P. Zhang and H. A. Makse, *Phys. Rev. E* **72**, 011301 (2005).
- [23] J. A. Drocco, M. B. Hastings, C. J. Reichhardt, and C. Reichhardt, *Phys. Rev. Lett.* **95**, 088001 (2005).
- [24] L. E. Silbert, A. J. Liu, and S. R. Nagel, *Phys. Rev. E* 041304 (2006).
- [25] S. Ostojic, E. Somfai, and B. Nienhuis, *Nature* **439**, 828 (2006).
- [26] K. Bräuer, M. Pfitzner, D. O. Krimer, M. Mayer, Y. Jiang, and M. Liu, *Phys. Rev. E* **74**, 061311 (2006).
- [27] W. G. Ellenbroek, E. Somfai, M. van Hecke, and W. van Saarloos, *Phys. Rev. Lett.* **97**, 258001 (2006).
- [28] M. Wyart, L. E. Silbert, S. R. Nagel, and T. A. Witten, *Phys. Rev. E* **72**, 051306 (2005).
- [29] E. Somfai, M. van Hecke, W. G. Ellenbroek, K. Shundyak, and W. van Saarloos, *Phys. Rev. E* **75**, 060302(R) (2007).
- [30] T. S. Majmudar, M. Sperl, S. Luding, and R. P. Behringer, *Phys. Rev. Lett.* **98**, 058001 (2007).
- [31] K. Shundyak, M. van Hecke, and W. van Saarloos, *Phys. Rev. E* **75**, 010301 (2007).
- [32] B. P. Tighe and J. E. S. Socolar, *Phys. Rev. E* **77**, 031303 (2008).
- [33] N. Xu, V. Vitelli, M. Wyart, A. J. Liu, and S. R. Nagel, *Phys. Rev. Lett.* **102**, 038001 (2009).
- [34] N. Xu, V. Vitelli, A. J. Liu, and S. R. Nagel, *ArXiv e-prints* (2009).
- [35] M. Pica Ciamarra and A. Coniglio, *Phys. Rev. Lett.* **103**, 235701 (2009).
- [36] V. Vitelli, N. Xu, M. Wyart, A. J. Liu, and S. R. Nagel, *Phys. Rev. E* **81**, 021301 (2010).

- [37] D. J. Durian, Phys. Rev. Lett. **75**, 4780 (1995).
- [38] P. Olsson and S. Teitel, Phys. Rev. Lett. **99**, 178001 (2007).
- [39] T. Hatano, Journal of the Physical Society of Japan **77**, 123002 (2008).
- [40] Phys. Rev. E **75**, 060301 (2007).
- [41] T. Hatano, Phys. Rev. E **79**, 050301 (2009).
- [42] V. Langlois, S. Hutzler, and D. Weaire, Phys. Rev. E **78**, 021401 (2008).
- [43] B. P. Tighe, E. Woldhuis, J. J. C. Remmers, W. van Saarloos, and M. van Hecke, ArXiv e-prints (2010).
- [44] A. J. Liu and S. R. Nagel, Nature **396**, 21 (1998).
- [45] W. A. P. ed., *Amorphous Solids. Low Temperature Properties* (Springer-Verlag, ADDRESS, 1981).
- [46] W. A. Phillips, Reports on Progress in Physics **50**, 1657 (1987).
- [47] S. R. Elliott, *Physics of Amorphous Materials* (Longman, ADDRESS, 1990).
- [48] J. C. Maxwell, Philosoph. Mag. **27**, 250 (1864).
- [49] S. Alexander, Physics Reports **296**, 65 (1998).
- [50] D. L. Johnson, H. A. Makse, N. Gland, and L. Schwartz, Physica B: Condensed Matter **279**, 134 (2000).
- [51] E. Somfai, J.-N. Roux, J. H. Snoeijer, M. van Hecke, and W. van Saarloos, Phys. Rev. E **72**, 021301 (2005).
- [52] M. van Hecke, J. Phys.: Condens. Matter **22**, 033101 (2010).
- [53] W. G. Ellenbroek, Z. Zeravcic, W. van Saarloos, and M. van Hecke, Europhysics Letters **87**, 34004 (2009).
- [54] M. Wyart, Ann. de Phys. **30**, 030000 (2005).
- [55] M. Wyart, S. R. Nagel, and T. A. Witten, Europhys. Lett. **72**, 486 (2005).
- [56] C. Maloney, Phys. Rev. Lett. **97**, 035503 (2006).
- [57] T. G. Leighton, *The acoustic bubble* (Academic Press, London, 1994).
- [58] T. G. Leighton, Int. J. Mod. Phys. B **18**, 3267 (2004).
- [59] B. Wursig, C. R. Greene, and T. A. Jefferson, Mar. Environ. Res. **49**, 79 (2000).

- [60] T. Osborn, D. M. Farmer, S. Vagle, S. A. Thorpe, and M. Cure, *Atmos.-Ocean* **30**, 419 (1992).
- [61] F. A. Sharpe and L. M. Dill, *Can. J. Zool.-Rev. Can. Zool.* **75**, 725 (1997).
- [62] M. Versluis, A. v. d. Heydt, B. Schmitz, and D. Lohse, *Science* **289**, 2114 (2000).
- [63] L. van Wijngaarden, *Ann. Rev. Fluid Mech.* **4**, 369 (1972).
- [64] L. Noordzij and L. van Wijngaarden, *J. Fluid Mech.* **66**, 115 (1974).
- [65] P. Burns, *Clin. Radiol.* **51**, 50 (1996).
- [66] S. L. Mulvagh, A. N. DeMaria, S. B. Feinstein, P. N. Burns, S. Kaul, J. G. Miller, M. Monaghan, T. R. Porter, L. J. Shaw, F. S. Villanueva, and Am Soc Echocardiography Task Force, *J. Am. Soc. Echocardiogr.* **13**, 331 (2000).
- [67] P. A. Dayton, J. E. Chomas, A. F. H. Lum, J. S. Allen, J. R. Lindner, S. I. Simon, and K. W. Ferrara, *Biophys. J.* **80**, 1547 (2000).
- [68] S. P. Qin and K. W. Ferrara, *Phys. Med. Biol.* **51**, 5065 (2006).
- [69] S. M. van der Meer, B. Dollet, M. M. Voormolen, C. T. Chin, A. Bouakaz, N. de Jong, M. Versluis, and D. Lohse, *J. Acoust. Soc. Am.* **121**, 648 (2007).
- [70] M. Arora, L. Junge, and C. Ohl, *Ultrasound Med. Biol.* **31**, 827 (2005).
- [71] M. Arora, C. D. Ohl, and D. Lohse, *J. Acoust. Soc. Am.* **121**, 3432 (2007).
- [72] A. Busnaina, I. Kashkoush, and G. Gale, *J. Electrochem. Soc.* **142**, 2812 (1995).
- [73] D. Krefting, R. Mettin, and W. Lauterborn, *Ultrason. Sonochem.* **11**, 119 (2004).
- [74] A. Zijlstra, T. Janssens, K. Wostyn, M. Versluis, P. M. Mertens, and D. Lohse, *Solid State Phenomena* **145-146**, 7 (2009).
- [75] R. Mettin, I. Akhatov, U. Parlitz, C. D. Ohl, and W. Lauterborn, *Phys. Rev. E* **56**, 2924 (1997).
- [76] E. Somfai, M. van Hecke, W. G. Ellenbroek, K. Shundyak, and W. van Saarloos, *Phys. Rev. E* **75**, 020301(R) (2007).
- [77] E. Somfai, M. van Hecke, W. G. Ellenbroek, K. Shundyak, and W. van Saarloos, *Phys. Rev. E* **75**, 020301 (2007).
- [78] N. Xu, M. Wyart, A. J. Liu, and S. R. Nagel, *Phys. Rev. Lett.* **98**, 175502 (2007).
- [79] W. G. Ellenbroek, E. Somfai, M. van Hecke, and W. van Saarloos, *Phys. Rev. Lett.* **97**, 258001 (2006).
- [80] P. Olsson and S. Teitel, *Phys. Rev. Lett.* **99**, 178001 (2007).

- [81] T. Hatano, Phys. Rev. E **79**, 050301 (2009).
- [82] S. Henkes, C. S. O'Hern, and B. Chakraborty, Phys. Rev. Lett. **99**, 038002 (2007).
- [83] C. Song, P. Wang, and H. A. Makse, Nature **453**, 629 (2008).
- [84] S. Alexander, Phys. Rep. **296**, 65 (1998).
- [85] A. J. Liu and S. R. Nagel, Nature **396**, 21 (1998).
- [86] A. Donev, I. Cisse, D. Sachs, E. A. Variano, F. H. Stillinger, R. Connelly, S. Torquato, and P. M. Chaikin, Science **303**, 990 (2004).
- [87] A. Donev, F. H. Stillinger, P. M. Chaikin, and S. Torquato, Phys. Rev. Lett. **92**, 255506 (2004).
- [88] W. Man, A. Donev, F. H. Stillinger, M. T. Sullivan, W. B. Russel, D. Heeger, S. Inati, S. Torquato, and P. M. Chaikin, Phys. Rev. Lett. **94**, 198001 (2005).
- [89] A. Donev, R. Connelly, F. H. Stillinger, and S. Torquato, Phys. Rev. E **75**, 051304 (2007).
- [90] S. Sacanna, L. Rossi, A. Wouterse, and A. P. Philipse, J. of Phys. Cond. Matt. **19**, 406215 (2007).
- [91] A. Wouterse, S. R. Williams, and A. P. Philipse, J. of Phys. Cond. Matt. **19**, 376108 (2007).
- [92] D. A. Weitz, Science **303**, 968 (2004).
- [93] J. G. Gay and B. J. Berne, The Journal of Chemical Physics **74**, 3316 (1981).
- [94] M. P. Allen and D. J. Tildesley, *Computer simulation of liquids* (Oxford Science Publications, Oxford, UK, 1987).
- [95] G. Venkataraman and V. C. Sahn, Reviews of Modern Physics **42**, (1970).
- [96] M. Mailman, C. F. Schreck, C. S. O'Hern, and B. Chakraborty, arXiv **0812.1234**, (2008).
- [97] Z. Zeravcic, N. Xu, A. J. Liu, S. R. Nagel, and W. van Saarloos, in preparation (2009).
- [98] W. G. Ellenbroek, E. Somfai, M. van Hecke, and W. van Saarloos, Phys. Rev. Lett. **97**, 258001 (2006).
- [99] H. P. Zhang and H. A. Makse, Phys. Rev. E **72**, 011301 (2005).
- [100] A. Kasahara and H. Nakanishi, Phys. Rev. E **70**, 051309 (2004).
- [101] K. Shundyak, M. van Hecke, and W. van Saarloos, Phys. Rev. E **75**, 010301 (2007).

- [102] N. Xu, M. Wyart, A. J. Liu, and S. R. Nagel, *Phys. Rev. Lett.* **98**, 175502 (2007).
- [103] S. Henkes, M. van Hecke, and W. van Saarloos, arXiv **cond-mat.soft**, (2009).
- [104] A. Tanguy, J. P. Wittmer, F. Leonforte, and J.-L. Barrat, *Phys. Rev. B* **66**, 174205 (2002).
- [105] A. Bunde, J. W. Kantelhardt, and L. Schweitzer, *Ann. Phys.* **7**, 372 (1998).
- [106] F. Haake, *Quantum Signatures of Chaos*, 2nd ed. (Springer-Verlag, Berlin, Germany, 2001).
- [107] N. Hatano and D. R. Nelson, *Phys. Rev. Lett.* **77**, 570 (1996).
- [108] N. Hatano and D. R. Nelson, *Phys. Rev. B* **56**, 8651 (1997).
- [109] C. W. J. Beenakker, *Rev. Mod. Phys.* **69**, 731 (1997).
- [110] L. E. Silbert, A. J. Liu, and S. R. Nagel, *Phys. Rev. E* **79**, 021308 (2009).
- [111] H. Bittner, E. Markum and R. Pullirsch, *HEP* (2001).
- [112] D. Stauffer and A. Aharony, *Introduction to percolation theory* (Taylor & Francis Inc, Philadelphia, USA, 1994).
- [113] P. L. Leath, *PRB* **14**, 5046 (1976).
- [114] M. S. Plesset and A. Prosperetti, *Annu. Rev. Fluid Mech.* **9**, 145 (1977).
- [115] A. Prosperetti and A. Lezzi, *J. Fluid Mech.* **168**, 457 (1986).
- [116] C. E. Brennen, *Cavitation and Bubble Dynamics* (Oxford University Press, Oxford, 1995).
- [117] M. P. Brenner, S. Hilgenfeldt, and D. Lohse, *Rev. Mod. Phys.* **74**, 425 (2002).
- [118] N. Bremond, M. Arora, C. D. Ohl, and D. Lohse, *Phys. Rev. Lett.* **96**, 224501 (2006).
- [119] N. Bremond, M. Arora, S. Dammer, and D. Lohse, *Phys. Fluids* **18**, 121505 (2006).
- [120] N. Bremond, M. Arora, C. D. Ohl, and D. Lohse, *J. Phys.: Condens. Matter* **17**, S3603 (2005).
- [121] N. A. Pelekasis, A. Gaki, A. A. Doinikov, and J. A. Tsamopoulos, *J. Fluid Mech.* **500**, 313 (2004).
- [122] A. A. Doinikov, *J. Acous. Soc. Am.* **116**, 821 (2004).
- [123] H. Rathgen, K. Sugiyama, C. D. Ohl, D. Lohse, and F. Mugele, *Phys. Rev. Lett.* **99**, 214501 (2007).

-
- [124] Z. Zeravcic, W. van Saarloos, and D. R. Nelson, *EPL* **83**, 44001 (2008).
- [125] A. Liu and S. R. Nagel, *Ann. Rev. Cond. Matt. Phys.* (2010).
- [126] D. Sornette and B. Souillard, *Europhys. Lett.* **7**, 269 (1988).
- [127] Z. Ye and A. Alvarez, *Phys. Rev. Lett.* **80**, 3503 (1998).
- [128] D. Sornette and O. Legrend, *J. Acoust. Soc. Am.* **92**, 296 (1992).
- [129] P. Sheng, *Introduction to wave scattering, Localization and Mesoscopic Phenomena* (Academic Press Inc., USA, 1995).
- [130] P. Sheng, *Scattering and Localization of Classical Waves in Random Media* (World Scientific, ADDRESS, 1990).
- [131] S. Hilgenfeldt, D. Lohse, and M. P. Brenner, *Phys. Fluids* **8**, 2808 (1996).
- [132] S. Hilgenfeldt, M. P. Brenner, S. Grossmann, and D. Lohse, *J. Fluid Mech.* **365**, 171 (1998).
- [133] V. Garbin, D. Cojoc, E. Ferrari, E. Di Fabrizio, M. L. J. Overvelde, S. M. van der Meer, N. de Jong, D. Lohse, and M. Versluis, *Appl. Phys. Lett.* **90**, (2007).
- [134] A. L. Porta, G. A. Voth, A. M. Crawford, J. Alexander, and E. Bodenschatz, *Nature* **409**, 1017 (2001).
- [135] F. Toschi and E. Bodenschatz, *Ann. Rev. Fluid Mech.* **41**, 375 (2009).
- [136] J. Martinez-Mercado, D. Chehata-Gomez, D. van Gils, C. Sun, and D. Lohse, *J. Fluid Mech.* **649**, x (2010).
- [137] W. Nyborg and D. Hughes, *J. Acoust. Soc. Am.* **42**, 891 (1967).

