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. Vidales, 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 Sicence 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).