

## Publications

Alex Hansen

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- 1 A. Hansen and F. Ravndal, “Klein’s Paradox and its Resolution,” *Phys. Script.* **23**, 1036 (1981).
- 2 R. Y. Chiao, A. Hansen and A. A. Moulthrop, “Fractional Statistics of the Vortex in Two-Dimensional Superfluids,” *Phys. Rev. Lett.* **54**, 1339 (1985).
- 3 A. Hansen, A. A. Moulthrop and R. Y. Chiao, “N-Dependent Fractional Statistics of N Vortices,” *Phys. Rev. Lett.* **55**, 1431 (1985).
- 4 A. Hansen and M. Nelkin, “Absence of Small Scale Structure in Homogeneous Superfluid Turbulence,” *Phys. Rev. B* **34**, 4894 (1986).
- 5 A. Hansen and M. Nelkin, “Nyquist Noise in a Fractal Resistor Network,” *Phys. Rev. B* **33**, 649 (1986).
- 6 G. G. Batrouni, A. Hansen and M. Nelkin, “Fourier Acceleration of Relaxation Processes in Disordered Systems,” *Phys. Rev. Lett.* **57**, 1336 (1986).
- 7 R. Y. Chiao, A. Hansen and A. A. Moulthrop, “Response to Comment on Fractional Statistics of the Vortex in Two-Dimensional Superfluids,” *Phys. Rev. Lett.* **58**, 175 (1987).
- 8 G. G. Batrouni, A. Hansen and M. Nelkin, “Anomalous Scaling of Moments in a Random Resistor Network,” *J. Physique* **48**, 771 (1987).
- 9 A. Hansen and S. Roux, “Application of “Logical Transport” to Determine the Directed and Isotropic Percolation Thresholds,” *J. Phys. A* **20**, L873 (1987).
- 10 S. Roux and A. Hansen, “Critical Behavior of Anisotropic “Superelastic” Central-Force Percolation,” *J. Phys. A* **20**, L879 (1987).
- 11 S. Roux, H. J. Herrmann, A. Hansen and E. Guyon, “Relation entre Différents Types de Comportements Non-linéaires des Réseaux Désordonnés,” *C. R. Acad. Sci. Paris, Ser. II* **305** 943 (1987).
- 12 S. Roux, A. Hansen and E. Guyon, “Criticality in Non-Linear Transport Properties in Heterogeneous Materials,” *J. Physique* **48**, 2125 (1987).
- 13 S. Roux and A. Hansen, “A New Algorithm to Extract the Backbone in a Random Resistor Network,” *J. Phys. A* **20**, L1281 (1987).
- 14 E. Guyon, A. Hansen and S. Roux, “Invited Comment on Resistance to the Flow of Fluids through Simple and Porous Media whose Matrices are Composed of Randomly Packed Spheres,” *J. Fluids Eng.* **109**, 274 (1987).
- 15 S. Roux and A. Hansen, “Transfer-Matrix Study of the Superconducting Diamagnetism at the Percolation Threshold,” *Europhys. Lett.* **5**, 473 (1988).
- 16 S. Roux and A. Hansen, “Anomalous Viscous Retardation of a Mechanical Wave at Percolation Threshold,” *J. Physique* **49**, 897 (1988).
- 17 S. Roux, A. Hansen, H. J. Herrmann and E. Guyon, “Rupture of Heterogeneous Materials in the Limit of Infinite Disorder,” *J. Stat. Phys.* **52**, 237 (1988).

- 18 A. Hansen, "A Connection Between the Percolation Transition and the Onset of Chaos in the Kauffman Model," *J. Phys. A* **21**, 2481 (1988).
- 19 S. Roux and A. Hansen, "Transfer-Matrix Study of the Elastic Properties of Central-Force Percolation," *Europhys. Lett.* **6**, 301 (1988).
- 20 A. Hansen and S. Roux, "Multifractality and Nonlinear Diamagnetic Susceptibility in a Superconducting Network at Percolation," *J. Physique* **49**, 1379 (1988).
- 21 P. M. Lam and A. Hansen, "Resistivity Exponent of Two- Dimensional Lattice Animals," *J. Stat. Phys.* **52**, 447 (1988).
- 22 G. G. Batrouni and A. Hansen, "Fourier Acceleration of Iterative Processes in Disordered Systems," *J. Stat. Phys.* **52**, 747 (1988).
- 23 S. Roux and A. Hansen, "Surface Exponents in Percolation and Central-Force Percolation: A Test for Splay Rigidity," *Phys. Rev. B* **38**, 5170 (1988).
- 24 G. G. Batrouni, A. Hansen and S. Roux, "The Negative Moments of the Current Distribution in the Random Resistor Network," *Phys. Rev. A* **38**, 3820 (1988).
- 25 A. Hansen, "Percolation and Spreading of Damage in a Simplified Kauffman Model," *Physica A* **153**, 47 (1988).
- 26 S. Roux and A. Hansen, "Scalar Formulation of Central-Force Percolation in Two Dimensions," *J. Phys. A* **21**, 1941 (1988).
- 27 A. Hansen and S. Roux, "Multifractality in Elastic Percolation," *J. Stat. Phys.* **53**, 759 (1988).
- 28 S. Roux, A. Hansen and E. Guyon, "Comment on Percolation in Isotropic Elastic Media," *Phys. Rev. Lett.* **61**, 2501 (1988).
- 29 E. Guyon, S. Roux and A. Hansen, "Non-Local and Non-Linear Problems in the Physics of Disordered Media," in *Far from Equilibrium Phase Transitions*, edited by L. Garrido (Springer Verlag, Berlin 1988).
- 30 E. L. Hinrichsen, A. Hansen and S. Roux, "A Fracture Growth Model," *Europhys. Lett.* **8**, 1 (1989).
- 31 L. R. da Silva, A. Hansen and S. Roux, "Spreading of Damage in Deterministic Cellular Automata as a Percolation Problem," *Europhys. Lett.* **8**, 47 (1989).
- 32 H. J. Herrmann, A. Hansen and S. Roux, "Fracture of Disordered, Elastic Lattices in Two Dimensions," *Phys. Rev. B* **39**, 637 (1989).
- 33 S. Roux and A. Hansen, "Off-Threshold Multifractality in Percolation," *Europhys. Lett.* **8**, 729 (1989).
- 34 S. Roux, A. Hansen and E. Guyon, "Propagation of Order in the Dilute Antiferromagnetic Three-State Potts Model," *J. Stat. Phys.* **55**, 341 (1989).
- 35 E. Guyon, A. Hansen, E. L. Hinrichsen and S. Roux, "Critical Behaviors of Central-force Lattices," *Physica A* **157**, 580 (1989).
- 36 A. Hansen and S. Roux, "Universality Class of Central-Force Percolation," *Phys. Rev. B* **40**, 749 (1989).
- 37 A. Hansen, S. Roux and H. J. Herrmann, "Rupture of Central-Force Lattices," *J. Physique* **50**, 733 (1989).

- 38 L. de Arcangelis, A. Hansen, H. J. Herrmann and S. Roux, "Scaling Laws in Fracture," *Phys. Rev. B* **40**, 877 (1989).
- 39 A. Hansen, P. M. Lam and S. Roux, "The Surface Order Parameter in Three Dimensional Percolation," *J. Phys. A* **22**, 2635 (1989).
- 40 D. Sornette, M. Lagier, S. Roux and A. Hansen, "Critical Piezoelectricity in Percolation," *J. Physique* **50**, 2201 (1989).
- 41 A. Hansen, E. L. Hinrichsen and S. Roux, "Hierarchy of Effective Sizes of DLA Clusters," *J. Phys. A* **22**, L795 (1989).
- 42 A. Hansen and S. Roux, "A Geometrical Interpretation of the Chaotic State of Inhomogeneous Cellular Automata," *Physica A* **160**, 275 (1989).
- 43 S. Roux and A. Hansen, "Criticality in the Elastic and Geometrical Properties of Loose Packings of Particles," in *Powders and Grains*, edited by J. Biarez and R. Gourvès (A. A. Balkema, Rotterdam, 1989).
- 44 L. de Arcangelis, A. Hansen and S. Roux, "Scaling Laws and Fractal Patterns in Fracture," in 32ème Colloque de métallurgie de Saclay, 20, 21 juin, 1989: aspects microstructuraux de la rupture, Editions de la Revue de Métallurgie, **4**, 115 (1989).
- 45 S. Roux and A. Hansen, "Early Stages of Rupture in Disordered Materials," *Europhys. Lett.* **11**, 37 (1990).
- 46 A. Hansen, "Disorder," in *Statistical Models for the Fracture of Disordered Media*, edited by H. J. Herrmann and S. Roux (North-Holland, Amsterdam, 1990).
- 47 A. Hansen, T. Aukrust, J. M. Houlrik and I. Webman, "Scaling of the Overhangs in (1+1)-Dimensional Directed Processes in a Gradient," *J. Phys. A* **23**, L145 (1990).
- 48 A. Hansen, E. L. Hinrichsen and S. Roux, "Bruddmekanikk fra en ny synsvinkel," *Teknisk Ukeblad* **137** (12) 44 (1990).
- 49 E. Guyon, S. Roux, A. Hansen, D. Bideau, J.-P. Troadec and H. Crapo, "Non-Local and Non-Linear Problems in Mechanics of Disordered Media: Applications to Granular Media," *Rep. Prog. Phys.* **53**, 373 (1990).
- 50 E. L. Hinrichsen, S. Roux and A. Hansen, "The Conductor- Superconductor Transition in Disordered Superconducting Materials," *Physica C* **167**, 433 (1990).
- 51 A. Hansen, E. L. Hinrichsen, S. Roux, H. J. Herrmann and L. de Arcangelis, "Deterministic Growth of Diffusion Limited Aggregation with Quenched Disorder," *Europhys. Lett.* **13**, 341 (1990).
- 52 A. Hansen, E. L. Hinrichsen and S. Roux, "Statistical Models of Breakdown and Fracture," *Phys. Script. T* **33**, 20 (1990).
- 53 A. Hansen, S. Roux, and E. L. Hinrichsen "Annealed Model for Breakdown Processes," *Europhys. Lett.* **13**, 517 (1990).
- 54 S. Roux, A. Hansen and E. L. Hinrichsen, "Percolation in a Gradient: Conductivity Properties," *J. Phys. A* **23**, L1253 (1990).
- 55 S. Roux and A. Hansen, "Introduction to Multifractality," in *Disorder and Fracture*, edited by J. C. Charmet, S. Roux and E. Guyon (Plenum Press, New York, 1990).
- 56 A. Hansen, E. L. Hinrichsen and S. Roux, "Scale-Invariant Disorder in Fracture and Related Breakdown Phenomena," *Phys. Rev. B* **43**, 665 (1991).

- 57 S. Roux, A. Hansen and E. L. Hinrichsen, "Multifractality of Conductance Jumps in Percolation," *Phys. Rev. B* **43**, 3601 (1991).
- 58 S. Roux, A. Hansen and E. L. Hinrichsen, "A Direct Mapping between Eden Growth Model and Directed Polymers in Random Media," *J. Phys. A* **24**, L295 (1991).
- 59 S. Roux, A. Hansen, E. L. Hinrichsen and D. Sornette, "Fuse Model on a Randomly Diluted Hierarchical Lattice," *J. Phys. A* **24**, 1625 (1991).
- 60 A. Hansen, L. de Arcangelis and S. Roux, "Fracture fragile des milieux hétérogènes," *Bulletin de la Société Française de Physique*, **80**, 6 (avril 1991).
- 61 A. Hansen, E. L. Hinrichsen and S. Roux, "Roughness of Crack Interfaces," *Phys. Rev. Lett.* **66**, 2476 (1991).
- 62 A. Hansen and J. M. Houlrik, "Scaling of Overhangs Appearing in Fronts in Higher Dimensions," *J. Phys. A* **24**, 2377 (1991).
- 63 A. Hansen, E. L. Hinrichsen and S. Roux, "Comment on Negative Moments of Current Distribution In Random Resistor Networks," *Phys. Rev. Lett.* **67**, 279 (1991).
- 64 S. Roux, P. Rigord, A. Hansen and E. L. Hinrichsen, "Power Dissipation in Random Resistor Networks with a Broad Distribution of Conductivities," *Phys. Rev. B* **43**, 10984 (1991).
- 65 A. Hansen, E. L. Hinrichsen and P. A. Slotte, eds. *Proceedings of the IVth Nordic Symposium on Computer Simulations in Natural Science*, *Phys. Script.* **T38** (1991).
- 66 L. Furuberg, A. Hansen, E. L. Hinrichsen, J. Feder and T. Jøssang, "Scaling of Overhang Distribution of Invasion Percolation Fronts," *Phys. Script.* **T 38**, 91 (1991).
- 67 A. Hansen, M. Schick and D. Stauffer, "Generalized Widom Model of Amphiphilic Systems," *Phys. Rev. A* **44**, 3686 (1991).
- 68 A. Aharony, E. L. Hinrichsen, A. Hansen, J. Feder, T. Jøssang and H. H. Hardy, "Effective Renormalization Group Algorithm for Transport in Oil Reservoirs," *Physica A* **177**, 260 (1991).
- 69 S. Roux, A. Hansen, L. R. da Silva, L. S. Lucena and R. B. Pandey, "Minimal Path on the Hierarchical Diamond Lattice," *J. Stat. Phys.* **65**, 183 (1991).
- 70 K. J. Måløy, A. Hansen, E. L. Hinrichsen and S. Roux, "Experimental Measurements of the Roughness of Brittle Cracks," *Phys. Rev. Lett.* **68**, 213 (1992).
- 71 P. C. Hemmer and A. Hansen, "The Distribution of Simultaneous Fiber Failures in Fiber Bundles," *J. Appl. Mech.* **59**, 909 (1992).
- 72 A. Hansen and E. L. Hinrichsen, "Some Remarks on Percolation," *Phys. Script.* **T 44**, 55 (1992).
- 73 S. Roux and A. Hansen, "Perfect Plasticity in a Random Medium," *J. Physique II* **2**, 1007 (1992).
- 74 M. Tasserie, A. Hansen and D. Bideau, "Experimental Simulation of Polymers in Disordered Media," *J. Physique I* **2**, 2025 (1992).
- 75 A. Hansen and D. Stauffer, "The Three-Dimensional Ising Model in a Temperature Gradient," *Physica A* **189**, 611 (1992).
- 76 G. G. Batrouni and A. Hansen, "Static Critical Exponents from the Dynamics of Damage Spreading and Overhangs in the Ising Model in a Temperature Gradient," *J.*

- Phys. A **25**, L1059 (1992).
- 77 A. Hansen, E. L. Hinrichsen and S. Roux, “Non-Directed Polymers in Random Media,” J. Physique I **3**, 1569 (1993)
- 78 A. Hansen, E. L. Hinrichsen, K. J. Måløy and S. Roux, “Response to Comment on Experimental Measurements of the Roughness of Brittle Cracks,” Phys. Rev. Lett. **71**, 205 (1993).
- 79 A. Hansen, E. L. Hinrichsen and D. Stauffer, “Percolation in Layered Media — A Transfer Matrix Approach,” Transport in Porous Media **11**, 45 (1993).
- 80 S. Roux, A. Hansen and E. L. Hinrichsen, “Comment on Analytic Model for Scaling of Breakdown,” Phys. Rev. Lett. **70**, 100 (1993).
- 81 D. Bideau and A. Hansen eds., *Disorder and Granular Media* (Elsevier, Amsterdam, 1993).
- 82 S. Roux, D. Bideau and A. Hansen, “Properties of the Grain Space of Packings: Effects of Heterogeneities,” chapter 8 of the book *Disorder and Granular Media*, edited by D. Bideau and A. Hansen (Elsevier, Amsterdam, 1993).
- 83 S. Roux, A. Hansen and J.-P. Vilotte, “Space-filling Bearings as a Model for Gouge: Applications to Magnetic Resonance,” Phys. Rev. B. **47**, 12266 (1993).
- 84 F. X. Riguidel, M. Ammi, D. Bideau, A. Hansen and J. C. Messenger, “Flow of Particles on an Inclined Plane,” *Powders and Grains 93*, edited by C. Thornton (Balkema, Rotterdam, 1993).
- 85 S. Roux, J. Schmittbuhl, J.-P. Vilotte and A. Hansen, “Some Properties of Self-Affine Rough Surfaces,” Europhys. Lett. **23**, 277 (1993).
- 86 S. Roux, A. Hansen, H. J. Herrmann and J. P. Vilotte “A Model for Gouge Deformation: Implications for remanent magnetization,” Geophys. Research Lett. **20**, 1499 (1993).
- 87 X.-l. Wu, K. J. Måløy, A. Hansen, M. Ammi and D. Bideau, “Why Hour Glasses Tick,” Phys. Rev. Lett. **71**, 1363 (1993).
- 88 K. J. Måløy, X.-l. Wu, A. Hansen and S. Roux, “Elastic Contact on Rough Surfaces,” Europhys. Lett. **24**, 35 (1993).
- 89 E. L. Hinrichsen, A. Aharony, J. Feder, A. Hansen, T. Jøssang and H. H. Hardy, “A Fast Algorithm for Estimating Large-Scale Permeabilities of Correlated Anisotropic Media,” Transport in Porous Media, **12**, 55 (1993).
- 90 M. Ammi, D. Bideau, A. Hansen, K. J. Måløy and X.-l. Wu, “Un Sablier... a Deux Temps,” Bulletin de la Société Française de Physique, **91**, 7 (octobre 1993).
- 91 D. Bideau, M. Ammi and A. Hansen, “Le Tic-Toc du Sablier,” La Recherche **261**, 92 (janvier 1994).
- 92 F.-X. Riguidel, R. Jullien, G. H. Ristow, A. Hansen and D. Bideau, “Roughness Effects on the Behavior of a Sphere on an Inclined Plane,” J. Physique **4**, 261 (1994).
- 93 A. Hansen and P. C. Hemmer, “Burst Avalanches in Bundles of Fibers: Local versus Global Load-Sharing,” Phys. Lett. A **184**, 394 (1994).
- 94 G. G. Batrouni, A. Hansen and G. H. Ristow, “Tolerance and Sensitivity in the Fuse Network,” J. Phys. A **27**, 1363 (1994).

- 95 S. Roux and A. Hansen, “Resistance Noise in Electrodeposition,” *Phys. Rev. E* **49**, R43 (1994).
- 96 S. Roux and A. Hansen, “Interface Roughening and Pinning,” *J. Physique I*, **4**, 515 (1994).
- 97 A. Hansen and P. C. Hemmer, “Criticality in Fracture: The Burst Distribution,” *Trends in Statistical Physics*, **1**, 213 (1994).
- 98 T. Engøy, K. J. Måløy, A. Hansen and S. Roux, “The Roughness of Two-Dimensional Cracks in Wood,” *Phys. Rev. Lett.* **73**, 834 (1994).
- 99 F. -X. Riguidel, A. Hansen and D. Bideau, “Gravity Driven Motion of One Particle on an Inclined Plane with Controlled Roughness,” *Europhys. Lett.* **28**, 13 (1994).
- 100 A. Hansen, K. J. Måløy and T. Engøy, “Measuring Hurst Exponents with the First Return Method,” *Fractals*, **2**, 527 (1994).
- 101 K. J. Måløy, M. Ammi, D. Bideau, A. Hansen and X. -l. Wu, “Quelques Experiences sur le Sablier Intermittant,” *C. R. Acad. Sci. Paris*. **319**, Sér. II, 1463 (1994).
- 102 K. K. Bardhan, B. K. Chakrabarti and A. Hansen, editors *Nonlinearity and Breakdown in Soft Condensed Matter*, Springer Lecture Notes in Physics, **437**, (1994).
- 103 D. Bideau, F. -X. Riguiel, A. Hansen, G. Ristow, X. -l. Wu, K. J. Måløy and M. Ammi, “Granular Flow: Some Experimental Results,” in *Nonlinearity and Breakdown in Soft Condensed Matter*, edited by K. K. Bardhan, B. K. Chakrabarti and A. Hansen, Springer Lecture Notes on Physics, **437**, 18 (1994).
- 104 A. Hansen, “Tunneling and Percolation in the Quantum Hall Effect,” in *Nonlinearity and Breakdown in Soft Condensed Matter*, edited by K. K. Bardhan, B. K. Chakrabarti and A. Hansen, Springer Lecture Notes on Physics, **437**, 331 (1994).
- 105 A. Hansen and C. A. Lütken, “Semiclassical Quantum Percolation in the Quantum Hall System,” *Phys. Rev. B* **51**, 5566 (1995).
- 106 P. Davy, A. Hansen, E. Bonnet and S. -z. Zhang, “Localisation and Fault Growth in Brittle-Ductile Systems: Consequences for the Lithosphere,” *J. Geophys. Research B* **100**, 6281 (1995).
- 107 R. Gutfraind and A. Hansen, “Study of Hydrodynamic Permeability using Lattice Gas Automata,” *Transport in Porous Media* **18**, 131 (1995).
- 108 R. Gutfraind, I. Ippolito and A. Hansen, “Study of Tracer Dispersion in Self-Affine Fractures using Lattice Gas Automata,” *Phys. Fluids*, **7**, 1938 (1995).
- 109 A. Hansen, F. Plouraboué and S. Roux, “Shadows in a Self-Affine Landscape,” *Fractals*, **3**, 91 (1995).
- 110 A. V. Bobylev, F. A. Maaø, A. Hansen and E. H. Hauge, “Two-Dimensional Magnetotransport According to the Classical Lorentz Model,” *Phys. Rev. Lett.* **75**, 197 (1995).
- 111 K. E. Wennberg, G. G. Batrouni and A. Hansen, “Modelling Fines Mobilization, Migration and Clogging,” SPE 30111, published in the *Proceedings of the European Reservoir Damage Control Conference*, den Haag, May 15-16, 1995.
- 112 A. Ekern, R. Suarez-Rivera and A. Hansen, “Investigation of Interface Wave Propagation Along Planar Fractures in Sedimentary Rocks,” *Rock Mechanics Proceedings*

- of the 35th U.S. Symposium, edited by J. J. K. Daemen and R. A. Schultz (Balkema, Rotterdam, 1995).
- 113 T. Le Pennec, K. J. Måløy, A. Hansen, D. Bideau, M. Ammi and X.-l. Wu, “Ticking hour glasses: Experimental analysis of intermittent flow,” *Phys. Rev. E* **53**, 2257 (1996).
- 114 G. G. Batrouni, A. Hansen and B. Larson, “Current Distribution in the three-dimensional Random Resistor Network at the Percolation Threshold,” *Phys. Rev. E* **53**, 2292 (1996).
- 115 E. Aker, K. J. Måløy and A. Hansen, “A simulation model for two phase flow in porous media,” in *Proceedings of the 8th Joint EPS-APS International Conference on Physics Computing 1996*, edited by P. Borchers, M. Bubak and A. Maksymowicz.
- 116 A. Hansen, “Localization and percolation in the quantum Hall effect,” in *Proceedings of the 8th Joint EPS-APS International Conference on Physics Computing 1996*, edited by P. Borchers, M. Bubak and A. Maksymowicz.
- 117 A. Hansen and J. Kertesz, “Absence of Self Averaging in Global Optimization Problems,” *Phys. Rev. E* **53**, R5541 (1996).
- 118 N. Berglund, A. Hansen, E. H. Hauge and J. Piasecki, “Can a Local Repulsive Potential Trap an Electron,” *Phys. Rev. Lett.* **77**, 2149 (1996).
- 119 K. E. Wennberg, G. G. Batrouni, A. Hansen and P. Horsrud, “Band formation in deposition of fines in porous media,” *Transport in Porous Media* **25**, 247 (1996).
- 120 I. Bratberg, A. Hansen and E. H. Hauge, “Geometrical Exponents in the Integer Quantum Hall Effect,” *Europhys. Lett.* **37**, 19 (1997).
- 121 J. Piasecki, A. Hansen and E. H. Hauge, “Magnetotransport in the 2D Lorentz model. Linear and nonlinear effects of a weak electric field,” *J. Phys. A* **30**, 795 (1997).
- 122 O. I. Frette, K. J. Måløy, J. Schmittbuhl and A. Hansen, “Immiscible Displacement in 2D Porous Media with Unit Viscosity Contrast,” *Phys. Rev. E* **55**, 2969 (1997).
- 123 H. Auradou, D. Bideau, A. Hansen and K. J. Måløy, “Motion of a Ball Dropped onto a One-Dimensional Self-Affine Surface,” *J. Phys. A* **30**, 4915 (1997).
- 124 I. Bratberg, A. Hansen and E. H. Hauge, “Tunneling in the Integer Quantum Hall Effect,” in *Tunneling and its implications*, edited by D. Mugnai, A. Ranfagni and L. S. Schulman (World Scientific, Singapore, 1997).
- 125 A. Hansen, E. H. Hauge, J. Hove and F. A. Maaø, “Criticality in the Integer Quantum Hall Effect,” *Ann. Rev. Comp. Phys.* **5**, 201 (1997).
- 126 A. V. Bobylev, F. A. Maaø, A. Hansen and E. H. Hauge, “There is More to be Learned from the Lorentz Model,” *J. Stat. Phys.* **87**, 1205 (1997).
- 127 M. Kloster, A. Hansen and P. C. Hemmer, “Burst Avalanches in Solvable Models of Fibrous Materials,” *Phys. Rev. E* **56**, 2615 (1997).
- 128 A. Hansen, “Book review of *Fractal Concepts in Surface Growth*,” *Fractals*, **5**, 325 (1997).
- 129 A. Hansen, S. Roux, A. Aharony, J. Feder, T. Jøssang and H. H. Hardy, “Real Space Renormalization Estimates for Two-Phase Flow in Porous Media,” *Transport in Porous Media*, **29**, 247 (1997).

- 130 G. G. Batrouni and A. Hansen, "Fracture in Three-Dimensional Fuse Networks," *Phys. Rev. Lett.* **80**, 325 (1998).
- 131 A. Hansen and J. Kertész, "Tunneling Percolation: Universality and Application to the Integer Quantum Hall Effect," *Phil. Mag.* **77**, 1301 (1998).
- 132 A. Hansen, M. H. Jensen, K. Sneppen and G. Zocchi, "A Hierarchical Scheme for Cooperativity and Folding in Proteins," in *Physica A*, **250**, 355 (1998).
- 133 M. A. Einarsrud, F. A. Maaø, A. Hansen, M. Kirkedelen and J. Samseth, "Band formation during gaseous diffusion in aerogels," *Phys. Rev. E* **57**, 6767 (1998).
- 134 J. Samseth, M. B. Kirkedelen, F. A. Maaø, A. Hansen and M. -A. Einarsrud, "Formation of Liesegang Pattern from Gas Diffusion in Silica Aerogels," *J. Non-Cryst. Solids* **225**, 298 (1998).
- 135 A. Hansen and P. C. Hemmer, "Simultaneous Fiber Failures in Fiber Bundles," in *Probamat-21st Century: Probabilities and Materials: Test, Models and Applications for the 21st Century*, edited by G. N. Frantziskonis (Kluwer, Dordrecht, 1998).
- 136 I. Ippolito, D. Bideau and A. Hansen, "Two-dimensional experimental simulation of polymers in annealed disordered media," *Phys. Rev. E.* **57**, 3656 (1998).
- 137 E. Aker, K. J. Måløy, A. Hansen and G. G. Batrouni, "A Two-Dimensional Network Simulator for Two-Phase Flow in Porous Media," *Transport in Porous Media* **32**, 163 (1998).
- 138 I. Simonsen, A. Hansen and O.-M. Nes, "Determination of the Hurst Exponent by use of Wavelet Transforms," *Phys. Rev. E* **58**, 2779 (1998).
- 139 E. Aker, K. J. Måløy and A. Hansen, "Simulating Temporal Evolution of Pressure in Two-Phase Flow in Porous Media," *Phys. Rev. E* **58**, 2217 (1998).
- 140 K. J. Måløy, T. Le Pennec, E. G. Flekkøy, D. Bideau, M. Ammi, J. C. Messenger, X. L. Wu and A. Hansen, "Granular Flow in Hoppers and Tubes," in *Physics of Dry Granular Media*, ed. by H. J. Herrmann, J. P. Hovi and S. Luding (Kluwer, Dordrecht, 1998).
- 141 A. Hansen, M. H. Jensen, K. Sneppen and G. Zocchi, "Statistical Mechanics of Warm and Cold Unfolding in Proteins," *Eur. Phys. J. B* **6**, 157 (1998).
- 142 E. Skjetne, A. Hansen and J. S. Gudmundsson, "High-Velocity Flow in a Self-Affine Channel," *J. Fluid. Mech.* **383**, 1 (1999).
- 143 A. Hansen, M. H. Jensen, K. Sneppen and G. Zocchi, "Hot and Cold Denaturation of Proteins: Critical Aspects," *European Physics Journal B* **10**, 193 (1999) .
- 144 A. Hansen, M. H. Jensen, K. Sneppen and G. Zocchi, "A Model for the Thermodynamics of Globular Proteins," *Physica A* **270**, 278 (1999).
- 145 H. Auradou, K. J. Måløy, J. Schmittbuhl and A. Hansen, "Competition between Correlated Buoyancy and Uncorrelated Capillary Effects during Drainage," *Phys. Rev. E* **60**, 7224 (1999).
- 146 A. Hansen, "Motion Along a Rough Inclined Surface," in *Dynamics: Models and Kinetic Methods for Non-Equilibrium Many Body Systems*, ed. by J. Karkheck, NATO ASI Series (Kluwer, Dordrecht, 2000).



- 147 E. Aker, K. J. Måløy and A. Hansen, “Viscous Displacement in Porous Media,” *Phys. Rev. E*, **61**, 2936 (2000).
- 148 A. Hansen, M. H. Jensen, K. Sneppen and G. Zocchi, “Modeling molecular motors as folding-unfolding cycles,” *Europhys Lett.* **50**, 120 (2000).
- 149 A. Hansen and S. Roux, “Statistics Toolbox for Damage and Fracture,” in *Damage and Fracture of Disordered Materials*, ed. by D. Krajcinovic and J. G. M. van Mier (Springer Verlag, Berlin, 2000).
- 150 J. Schmittbuhl, A. Hansen, H. Auradou and K. J. Måløy, “Geometry and Dynamics of Invasion Percolation with Correlated Buoyancy,” *Phys. Rev. E* **61**, 3985 (2000).
- 151 H. A. Knudsen and A. Hansen, “Diamagnetic susceptibility and current distributions in granular superconductors,” *Phys. Rev. B* **61**, 11336 (2000).
- 152 E. Aker, K. J. Måløy and A. Hansen, “Viscous stabilization of 2D drainage displacements with trapping,” *Phys. Rev. Lett.* **84**, 4589 (2000).
- 153 E. Aker, K. J. Måløy, A. Hansen and S. Basak, “Burst dynamics during drainage displacements in porous media: Simulations and experiments,” *Europhys. Lett.* **51**, 55 (2000).
- 154 R. Donangelo, A. Hansen, K. Sneppen and S. R. Souza, “Modelling an Imperfect Market,” *Physica A* **283**, 469 (2000).
- 155 A. Hansen, M. H. Jensen, K. Sneppen and G. Zocchi, “A Model for The Thermodynamics of Proteins,” in *Soft Condensed Matter: Configurations, Dynamics and Functionality*, ed. by A. T. Skjeltorp and S. F. Edwards (Kluwer, Dordrecht, 2000).
- 156 A. Bakk, J. S. Høye, A. Hansen, K. Sneppen and M. H. Jensen, “Pathways in two-state protein folding,” *Biophysical Journal*, **79**, 2722 (2000).
- 157 A. Hansen, J. Schmittbuhl, G. G. Batrouni and F. A. Oliveira, “Normal Stress Distribution of Rough Surfaces in Contact,” *Geophys. Res. Lett.* **27**, 3639 (2000).
- 158 G. Frantziskonis and A. Hansen, “Wavelet-based multiscaling in self-affine random media”, *Fractals*, **8**, 403 (2000).
- 159 A. Hansen, M. H. Jensen, K. Sneppen and G. Zocchi, “Proteins Top-Down: A Statistical Mechanics Approach,” *Physica A*, **288**, 21 (2000).
- 160 R. Donangelo, A. Hansen, K. Sneppen and S. R. Souza, “Physics of Fashion Fluctuations,” *Physica A*, **287**, 539 (2000).
- 161 E. Aker, A. Hansen and K. J. Måløy, “A Numerical Study of Capillary and Viscous Drainage in Porous Media,” *Recent Res. Devel. Fluid Dynamics* **3**, 45 (2000).
- 162 A. V. Bobylev, A. Hansen, J. Piasecki and E. H. Hauge, “From the Liouville Equation to the Generalized Boltzmann Equation for Magnetotransport in the 2D Lorentz Model,” *J. Stat. Phys.* **102**, 1133 (2001).
- 163 A. Bakk, A. Hansen and K. Sneppen, “A protein model exhibiting three folding transitions,” *Physica A* **291**, 60 (2001).
- 164 N. Olivi-Tran, G. Batrouni and A. Hansen, “Crack formation in two-dimensional annular networks,” *J. Phys. Condens. Matter*, **13**, L135 (2001).
- 165 A. Hansen, “Sand, siloer og moderne fysikk,” P2-Akademiet, vol. S (NRK, Oslo, 2001).

- 166 A. Hansen, J. Schmittbuhl and G. G. Batrouni, “Distinguishing Fractional and White Noise in One and Two Dimensions,” *Phys. Rev. E*, **63**, 062102 (2001).
- 167 A. Bakk, J. S. Høye, A. Hansen and K. Sneppen, “Thermodynamical implications of a protein model with water interactions,” *J. Theor. Biol.* **210**, 367 (2001).
- 168 A. Hansen, “Random Fuse Networks: A Review,” in *Physical Aspects of Fracture*, edited by E. Bouchaud, D. Jeulin, C. Prioul and S. Roux (Springer Verlag, Berlin, 2001).
- 169 F. A. Oliveira, R. Morgado, C. Dias, G. G. Batrouni and A. Hansen, “Comment on Nonstationarity Induced by Long-Time Noise Correlations in the Langevin Equation,” *Phys. Rev. Lett.* **86**, 5839 (2001).
- 170 B. Skjetne, T. Helle and A. Hansen, “Roughness of Crack Interfaces in Two Dimensional Beam Lattices”, *Phys. Rev. Lett.* **87**, 125503 (2001).
- 171 A. Bakk, J. S. Høye and A. Hansen, “Heat Capacity of Protein Folding,” *Biophys. J.* **81**, 710 (2001).
- 172 A. Bakk, J. S. Høye and A. Hansen, “Specific Heat upon Aqueous Unfolding of the Protein Interior: A Theoretical Approach,” *Physica A*, **304**, 151 (2002).
- 173 A. Bakk, J. S. Høye and A. Hansen, “Apolar and polar solvation thermodynamics related to the protein unfolding process,” *Biophys. J.* **82**, 713 (2002).
- 174 H. A. Knudsen, E. Aker and A. Hansen, “Bulk flow regimes and fractional flow in 2D porous media by numerical simulation,” *Transport in Porous Media* **47**, 99 (2002).
- 175 G. G. Batrouni, A. Hansen and J. Schmittbuhl, “Heterogeneous Interfacial Failure between Two Elastic Blocks,” *Phys. Rev. E* **65**, 036126 (2002).
- 176 A. Bakk and A. Hansen, “Mapping the non-directed polymer model to a non-linear growth equation of Burgers type,” *Physica A* **310**, 7 (2002).
- 177 H. A. Knudsen and A. Hansen, “Relation between pressure and fractional flow in two-phase flow in porous media,” *Phys. Rev. E* **65**, 056310 (2002).
- 178 I. Simonsen and A. Hansen, “A fast algorithm for generating long self-affine profiles,” *Phys. Rev. E* **65**, 037701 (2002).
- 179 A. Bakk, P. Dommersnes, A. Hansen, J. S. Høye, K. Sneppen and M. H. Jensen, “Thermodynamics of Proteins: Fast Folders and Sharp Transitions,” *Comp. Phys. Comm.* **147**, 307 (2002).
- 180 R. Morgado, F. A. Oliveira, G. G. Batrouni and A. Hansen, “Relation between Anomalous and Normal Diffusion in Systems with Memory,” *Phys. Rev. Lett.* **89**, 100601 (2002).
- 181 I. Bratberg, F. Radjai and A. Hansen, “Dynamical rearrangements and packing regimes in randomly deposited two-dimensional granular beds,” *Phys. Rev. E* **66**, 031303 (2002).
- 182 G. G. Batrouni, A. Hansen and J. Schmittbuhl, “Elastic Response of Rough Surfaces in Partial Contact,” *Europhys. Lett.* **60**, 724 (2002).
- 183 H. Auradou, K. J. Måløy, J. Schmittbuhl and A. Hansen, “Drainage in Rough Gouge-Filled Fracture,” *Transport in Porous Media* **50**, 267 (2003).

- 184 A. Hansen and J. Schmittbuhl, “Origin of the universal roughness exponent of brittle fracture: ‘Stress-weighted percolation in the damage zone,’” *Phys. Rev. Lett.* **90**, 045504 (2003).
- 185 J. Schmittbuhl, A. Hansen and G. G. Batrouni, “Roughness of interfacial crack fronts: Stress-Weighted percolation in the damage zone,” *Phys. Rev. Lett.* **90**, 045505 (2003).
- 186 F. A. Oliveira, R. Morgado, M. V. B. T. Lima, M. A. Mello, A. Hansen and G. G. Batrouni, “Comment on Dynamical Foundations of Nonextensive Statistical Mechanics,” *Phys. Rev. Lett.* **90**, 218901 (2003).
- 187 J. Ø. H. Bakke, J. Bjelland, T. Ramstad, T. Strandén, A. Hansen and J. Schmittbuhl, “Roughness of Brittle Fractures as a Correlated Percolation Problem,” *Phys. Script. T* **106**, 65 (2003).
- 188 K. J. Måløy, J. Schmittbuhl, A. Hansen and G. G. Batrouni, “Scaling and Dynamics of an Interfacial Crack Front,” *Int. J. Fracture* **121**, 9 (2003).
- 189 G. G. Batrouni, A. Hansen and J. Schmittbuhl, “In-plane Roughness of Brittle Cracks,” *Int. J. Modern Phys. B.* **17**, 5631 (2003).
- 190 B. Skjetne, A. Hansen and T. Helle, “Paper modeled as a disordered system that buckles during fracture,” *Proceedings of the 2003 International Paper Physics Conference*, p. 211, ISBN 1-896742-90-4.
- 191 R. Korsnes, S. R. Souza, R. Donangelo, A. Hansen, M. Paczuski and K. Sneppen, “Scaling in Fracture and Refreezing of Sea Ice,” *Physica A* **331**, 291 (2004).
- 192 H. A. Knudsen and A. Hansen, “Generic differential equation for fractional flow of steady two-phase flow in porous media,” *Europhys. Lett.* **65**, 200 (2004).
- 193 J. Schmittbuhl, A. Hansen and G. G. Batrouni, “Reply to Comment on Roughness of Interfacial Crack Fronts: Stress-Weighted Percolation in the Damage Zone,” *Phys. Rev. Lett.* **92**, 049602 (2004).
- 194 J. O. Fossum, H. H. Bergene, A. Hansen, B. O’Rourke and G. Manificat, “Self-Affine crossover length in a layered silicate deposit,” *Phys. Rev. E* **69**, 036108 (2004).
- 195 A. Hansen and J. Kertesz, “Phase Diagram of Optimal Paths,” *Phys. Rev. Lett.* **93**, 040601 (2004).
- 196 T. Ramstad, J. Ø. H. Bakke, J. Bjelland, T. Strandén and A. Hansen, “Correlation Length Exponent in the Three-Dimensional Fuse Model,” *Phys. Rev. E.* **70**, 036123 (2004).
- 197 G. G. Batrouni, T. Ramstad and A. Hansen, “Free energy landscape and the critical velocity of superfluid films,” *Proc. Roy. Soc. A (London)*, **362**, 1595 (2004).
- 198 I. Bratberg, F. Radjai and A. Hansen, “Intermittent flow of a collection of rigid frictionless disks in a vertical pipe,” *Phys. Rev. E* **71**, 011301 (2005).
- 199 S. Pradhan, B. K. Chakrabarti and A. Hansen, “Crossover behavior in a mixed-mode load sharing fiber bundle model,” *Phys. Rev. E.* **71**, 036149 (2005).
- 200 F. A. Oliveira, R. Morgado, A. Hansen and J. M. Rubi, “Superdiffusive conduction: AC conductivity with correlated noise,” *Physica A* **357**, 115 (2005).
- 201 S. Pradhan and A. Hansen, “Failure properties of loaded fiber bundles having a lower cutoff in fiber threshold distribution,” *Phys. Rev. E* **72**, 026111 (2005).

- 202 A. Hansen, “Physics and Fracture,” *Computing in Science and Engineering*, **7** (5), 90 (2005).
- 203 S. Pradhan, A. Hansen and P. C. Hemmer, “Crossover behavior in burst avalanches: Signature of imminent failure,” *Phys. Rev. Lett.* **95**, 125501 (2005).
- 204 R. Donangelo, A. Hansen, K. Sneppen and S. R. Souza, “Need, Greed and Noise: Competing Strategies in a Trading Model,” *Physica A*, **348**, 496 (2005).
- 205 B. S. Skagerstam and A. Hansen, “Memory effects and scaling properties of traffic flows,” *Europhys. Lett.* **72**, 513 (2005).
- 206 I. Bratberg, K. J. Måløy and A. Hansen, “Validity of the Janssen Law in Narrow Granular Columns,” *Eur. Phys. J. E*, **18**, 245 (2005).
- 207 T. Ramstad, J. Ø. H. Bakke and A. Hansen, “Scaling Properties of the Three Dimensional Fuse Model as a Model for Brittle Fracture,” *Strength, Fracture and Complexity*, **3**, 199 (2005).
- 208 H. A. Knudsen and A. Hansen, “Two-phase flow in porous media: Dynamical phase transition,” *Europ. Phys. J. B*, **49**, 109 (2006).
- 209 T. Ramstad and A. Hansen, “Cluster Distribution in Steady-State Two-Phase Flow in Porous Media,” *Phys. Rev. E* **73**, 026306 (2006).
- 210 R. Toussaint and A. Hansen, “Mean-field theory of localization in the fuse model,” *Phys. Rev. E* **73**, 046103 (2006).
- 211 J. Schmittbuhl, G. Chambon, A. Hansen and M. Bouchon, “Are stress distribution along faults the signature of asperity squeeze?” *Geophys. Res. Lett.* **33**, L123307 (2006).
- 212 P. C. Hemmer, A. Hansen and S. Pradhan, “Rupture Processes in Fiber Bundle Models,” in *Modelling Critical and Catastrophic Phenomena in Geoscience: A Statistical Physics Approach*, edited by P. Bhattacharyya and B. K. Chakrabarti, (Springer, Berlin, 2006).
- 213 A. Hansen and J. Mathiesen, “Survey of Scaling Surfaces,” in *Modeling Critical and Catastrophic Phenomena in Geoscience: A Statistical Physics Approach*, edited by P. Bhattacharyya and B. K. Chakrabarti, (Springer, Berlin, 2006).
- 214 S. Pradhan, A. Hansen and P. C. Hemmer, “Crossover Behavior in Failure Avalanches,” *Phys. Rev. E* **74**, 016122 (2006).
- 215 D. Helbing, A. Johansson, J. Mathiesen, M. H. Jensen and A. Hansen, “Analytical approach to Continuous and Intermittent Bottleneck Flows,” *Phys. Rev. Lett.* **97**, 168001 (2006).
- 216 J. Ø. H. Bakke, A. Hansen and J. Kertesz, “Failures and Avalanches in Complex Networks,” *Europhys. Lett.* **76**, 717 (2006).
- 217 E. Bouchaud, B. Chiaia, A. Hansen, H. J. Herrmann, R. Kalia, M. Marder and J. G. M. van Mier, eds. *Physics and Scaling of Fracture*, special issue of *Int. J. Fracture*, **140**, 1 (2006).
- 218 H. F. Hansen, C. Andresen and A. Hansen, “A quantitative measure for path structures of complex networks,” *Europhys. Lett.* **78**, 48005 (2007).

- 219 H. F. Hansen and A. Hansen, “A Monte Carlo Model for Networks between Professionals and Society,” *Physica A* **377**, 698 (2007).
- 220 S. Santucci, J. Mathiesen, K. J. Måløy, A. Hansen, J. Schmittbuhl, L. Vanel, A. Delaplace, J. Ø. H. Bakke and P. Ray, “Statistics of Fracture Surfaces,” *Phys. Rev. E* **75**, 016104 (2007).
- 221 A. Hansen, G. G. Batrouni, T. Ramstad and J. Schmittbuhl, “Self Affinity in the Gradient Percolation Problem,” *Phys. Rev. E* **75**, 030102 (2007).
- 222 J. Ø. H. Bakke, T. Ramstad and A. Hansen, “Roughness exponent measurements for the central force model,” *Phys. Rev. B* **76**, 054110 (2007).
- 223 C. Andresen, A. Hansen and J. Schmittbuhl, “Ridge network in crumpled paper,” *Phys. Rev. E*, **76**, 026108 (2007).
- 224 B. Skjetne, T. Helle and A. Hansen, “Scaling behavior of damage in the fracture of two-dimensional elastic beam lattices,” *Europhys. Lett.* **80**, 28002 (2007).
- 225 J. Ø. H. Bakke and A. Hansen, “Accuracy of Roughness Exponent Measurement Methods,” *Phys. Rev. E* **76**, 031136 (2007).
- 226 B. Skjetne, T. Helle and A. Hansen, “Effect of buckling on crack propagation in paper — a stochastic modeling experiment,” in *61st Appita Annual Conference and Exhibition, Gold Coast, Australia 6-9 May, 2007* p. 241 (2007).
- 227 J. Ø. H. Bakke and A. Hansen, “Mapping of the Roughness Exponent for the Fuse Model,” *Phys. Rev. Lett.* **100**, 045501 (2008).
- 228 T. Ramstad and A. Hansen, “Capillary-Driven Instability of Immiscible Fluid Interfaces Flowing in Parallel in Porous Media,” *Phys. Rev. E*, **78**, 035302(R) (2008).
- 229 S. Pradhan, A. Hansen and P. C. Hemmer, “Burst statistics as a criterion for imminent failure,” in *IUTAM Symposium on Scaling in Solid Mechanics* vol. 10, edited by F. Borodich (Springer Verlag, Berlin, 2008).
- 230 A. Hansen, “Sammenbruddets fysikk: Hvordan ting bryter sammen,” NRK P2-akademiet vol. XXXIX (NRK, Oslo, 2008).
- 231 C. A. Andresen, H. F. Hansen, A. Hansen, G. L. Vasconcelos and J. S. Andrade Jr., “Correlations between Political Party Size and Voter Memory: A Statistical Analysis of Opinion Polls,” *Int. J. Mod. Phys. C* **19**, 1647 (2008).
- 232 A. Hansen and T. Ramstad, “Towards a Thermodynamics of Immiscible Two-Phase Steady-State Flow in Porous Media,” *Comp. Geosci.*, **13**, 227(2009).
- 233 T. Ramstad, A. Hansen and P. E. Øren, “Flux-Dependent Percolation Transition in Immiscible Two-Phase Flow in Porous Media,” *Phys. Rev. E* **79**, 036310 (2009).
- 234 S. M. Hope and A. Hansen, “Burst Distribution in Noisy Fiber Bundle and Fuse Models,” *Physica A*, **388**, 4593 (2009).
- 235 G. Tørå, T. Ramstad and A. Hansen, “Anomalous Diffusion Clusters in Steady-State Two-Phase Flow in Porous Media in Two Dimensions,” *Europhys. Lett.* **87**, 54002 (2009); Erratum, **89**, 59901 (2010).
- 236 S. Pradhan, A. Hansen and B. K. Chakrabarti, “Failure Processes in Elastic Fiber Bundles,” *Rev. Mod. Phys.* **82**, 499 (2010).

- 237 L. Talon, H. Auradou and A. Hansen, “Permeability estimates of self-affine fracture faults based on generalization of the bottleneck concept,” *Water Res. Res.* **46**, W07601 (2010).
- 238 G. Tørå and A. Hansen, “Heat diffusion in a two-dimensional thermal fuse model,” *Phys. Rev. E* **81**, 066111 (2010).
- 239 S. Å Ellingsen, K. S. Gjerden, M. Grøva and A. Hansen, “Model for density waves in gravity-driven granular flow in narrow pipes,” *Phys. Rev. E* **81**, 061302 (2010).
- 240 L. Talon, H. Auradou and A. Hansen, “Permeability of Self-Affine Aperture Fields”, *Phys. Rev. E* **82**, 046108 (2010).
- 241 S. Santucci, M. Grob, R. Toussaint, J. Schmittbuhl, A. Hansen and K. J. Måløy, “Fracture roughness scaling: A case study on planar cracks,” *Europhys. Lett.* **92**, 44001 (2010).
- 242 J. Ø. H. Bakke, P. Ray and A. Hansen, “Morphology of Laplacian Random Walks,” *Europhys. Lett.* **92**, 36004 (2010).
- 243 H. F. Hansen, L. E. Walle and A. Hansen, “Wealth and income distributions in Norway: A case study,” *Dynamics of Socioeconomic Systems*, **2**, 110, (2010).
- 244 G. Tørå, A. Hansen and P. E. Øren, “Dynamic network modeling of resistivity index in a steady-state procedure,” SPE-135367, SPE Annual Technical Conference and Exhibition, 19–22 September, Florence, Italy (2010).
- 245 A. Hansen, L. S. Lucena and L. R. da Silva, “Spatial correlations in permeability distributions due to extreme dynamics restructuring of unconsolidated sandstone,” *Physica A*, **390**, 553 (2011).
- 246 A. Hansen and A. Sudbø (eds.) Special issue of *Comp. Phys. Comm.* in connection with CCP2010, **182**, 9, 1755 (2011).
- 247 A. Hansen, B.-S. Skagerstam and G. Tørå, “Anomalous Scaling and Solitary Waves in Systems with Non-Linear Diffusion”, *Phys. Rev. E* **83**, 056314 (2011).
- 248 M. Grøva and A. Hansen, “Two-Phase Flow in Porous Media: Power-Law Scaling of Effective Permeability,” *J. Phys. Conf. Ser.* **319**, 012009 (2011).
- 249 S. Sinha, M. Grøva, T. B. Ødegården, E. Skjetne and A. Hansen, “Local Wettability Reversal during Steady-State Two-Phase Flow in Porous Media,” *Phys. Rev. E*, **84**, 037303 (2011).
- 250 G. Tørå, P. E. Øren and A. Hansen, “A dynamic network model for two-phase flow in reservoir rocks,” *Transp. Por. Media.* **92**, 145 (2012).
- 251 L. Talon, H. Auradou and A. Hansen, “Relation between first arrival time and permeability in self-affine fractures with contact areas,” *Europhys. Lett.* **97**, 68009 (2012).
- 252 S. Sinha and A. Hansen, “Effective Rheology of Immiscible Two-Phase Flow in Porous Media,” *Europhys. Lett.* **99**, 44004 (2012).
- 253 A. Stormo, K. S. Gjerden and A. Hansen, “Onset of Localization in Heterogeneous Interfacial Failure,” *Phys. Rev. E* **86**, 025101(R) (2012).
- 254 B. Skjetne and A. Hansen, “Stochastic Modeling of Crack Avalanches in Hydraulic Fracture,” *The Southern African Institute of Mining and Metallurgy Symposium Series*, **S71**, 81 (2012).

- 255 K. S. Gjerden, A. Stormo and A. Hansen, “A model for stable interfacial crack growth,” *J. Phys. Conf. Ser.* **402**, 012039 (2012).
- 256 A. A. Moreira, C. L. N. Oliveira, A. Hansen, N. A. M. Araujo, H. J. Herrmann and J. S. Andrade Jr., “Fracturing Highly Disordered Materials,” *Phys. Rev. Lett.* **109**, 255701 (2012).
- 257 S. Sinha, A. Hansen, D. Bedeaux and S. Kjelstrup, “Effective rheology of bubbles moving in a capillary tube,” *Phys. Rev. E* **87**, 025001 (2013).
- 258 C. A. Andresen, A. Hansen, R. Le Goc, P. Davy and S. M. Hope, “Topology of Fracture Networks,” *Front. Phys.* **1**, 7 (2013).
- 259 L. Talon, H. Auradou, M. Pessel and A. Hansen, “Geometry of Optimal Path Hierarchies,” *Europhys. Lett.* **103**, 30003 (2013).
- 260 K. S. Gjerden, A. Stormo and A. Hansen, “Universality Classes in Constrained Crack Growth,” *Phys. Rev. Lett.* **111**, 135502 (2013).
- 261 M. Erpelding, S. Sinha, K. T. Tallakstad, A. Hansen, E. G. Flekkøy and K. J. Måløy, “History-independence of steady state in simultaneous two-phase flow through porous media,” *Phys. Rev. E.* **88**, 053004 (2013).
- 262 L. Talon, H. Auradou and A. Hansen, “Ecoulement de fluides à seuil en milieux poreux ou fracturés,” *Proceedings of the 21ème Congrès Français de Mécanique (AFM, Maison de la Mécanique, Courbevoie, 2013)*.
- 263 J. N. Vevatne, E. Rimstad, S. M. Hope, R. Korsnes and A. Hansen, “Fracture networks in sea ice”, *Front. Phys.* **2**, 21 (2014).
- 264 L. Talon, H. Auradou and A. Hansen, “Effective rheology of Bingham fluids in a rough channel,” *Front. Phys.* **2**, 24 (2014).
- 265 S. M. Hope, A. A. Moreira, J. S. Andrade, Jr., and A. Hansen, “Reservoir Mapping by Global Correlation Analysis,” *Int. J. Rock Mech. and Mining Sci.* **67**, 181 (2014).
- 266 A. Hansen and E. Guyon, “La Percolation” in *La Matière en Désordre* (EDP Sciences, Paris, 2014).
- 267 S. Patinet, D. Vandembroucq, A. Hansen and S. Roux, “Cracks in random brittle solids,” *Europ. J. Phys. Special Topics*, **223**, 2339 (2014).
- 268 A. Hansen, “Grand challenges in interdisciplinary physics,” *Frontiers in Physics*, **2**, 58 (2014).
- 269 O. Aursjø, M. Erpelding, K. T. Tallakstad, E. G. Flekkøy, A. Hansen and K. J. Måløy, “Simultaneous flow of two incompressible fluids through porous media,” *Frontiers in Physics*, **2**, 63 (2014).
- 270 K. S. Gjerden, A. Stormo and A. Hansen, “Local dynamics of a randomly pinned crack front: a numerical study,” *Frontiers in Physics*, **2**, 66 (2014).
- 271 B. Skjetne, A. Hansen and T. Helle, “Discrete element modeling of fracture roughness in three dimensions,” *Frontiers in Physics*, **2**, 68 (2014).
- 272 E. G. Flekkøy and A. Hansen, “Effective medium derivation of the Cole-Cole relation for electric conductivity,” *Geophysics*, **89**, E23 (2015).
- 273 A. Hansen, P. C. Hemmer and S. Pradhan, *The Fiber Bundle Model* (Wiley-VCH, Berlin, 2015).

- 274 G. Linga, P. Ballone and A. Hansen, “Creep rupture of fiber bundles: a molecular dynamics investigation,” *Phys. Rev. E* **92**, 022405 (2015).
- 275 S. Sinha, J. T. Kjellstadli and A. Hansen, “The local load sharing fiber bundle model in higher dimensions,” *Phys. Rev. E* **92**, 020401(R) (2015).
- 276 S. M. Hope, S. Kundu, C. Roy, S. S. Manna and A. Hansen, “Network Topology of the Desert Rose,” *Front. Phys.* **3**, 72 (2015).
- 277 S. M. Hope, J. Maillot, J. Le Goc, P. Davy and A. Hansen “Topological impact of constrained fracture growth,” *Front. Phys.* **3**, 75 (2015).
- 278 V. Flovik, S. Sinha and A. Hansen, “Dynamic wettability alteration in immiscible two-phase flow in porous media: Effect on transport properties and critical slowing down,” *Front. Phys.* **3**, 86 (2015).
- 279 A. Stormo, O. Lengliné, J. Schmittbuhl and A. Hansen, “Soft-Clamp Fiber Bundle Model and Interfacial Crack Propagation: Comparison Using a Non-Linear Imposed Displacement,” *Front. Phys.* **4**, 18 (2016).
- 280 I. Savani, S. Sinha, A. Hansen, D. Bedeaux, S. Kjelstrup and M. Vassvik, “A Monte Carlo Algorithm for Immiscible Two-Phase Flow in Porous Media,” *Transp. Por. Med.*, **116**, 869 (2017).
- 281 I. Savani, D. Bedeaux, S. Kjelstrup, M. Vassvik, S. Sinha and A. Hansen, “Ensemble Distribution for Immiscible Two-Phase Flow in Two-Dimensional Networks,” *Phys. Rev. E*, **95**, 023116 (2017).
- 282 S. Sinha, A. T. Bender, M. Danczyk, K. Keepseagle, C. A. Prather, J. M. Bray, L. W. Thrane, J. D. Seymour, S. L. Codd and A. Hansen, “Effective Rheology of Two-Phase Flow in Three-Dimensional Porous Media: Experiment and Simulation,” *Transp. Porous Med.*, **119**, 77 (2017).
- 283 M. Aa. Gjennestad, M. Vassvik, S. Kjelstrup and A. Hansen, “Stable and Efficient Time Integration of a Dynamic Pore Network Model for Two-Phase Flow in Porous Media,” *Front. Phys.* **6**, 56 (2018).
- 284 S. Pradhan, A. Hansen and P. Ray, “A Renormalization Group Procedure for Fiber Bundle Models,” *Front. Phys.* **6**, 65 (2018).
- 285 A. Hansen, S. Sinha, D. Bedeaux, S. Kjelstrup, M. Aa. Gjennestad and M. Vassvik, “Relations Between Seepage Velocities in Two-Phase Flow in Homogeneous Porous Media,” *Transp. Porous Med.* **125**, 565 (2018).
- 286 M. Hendrick, S. Pradhan and A. Hansen, “Mesoscopic Description of the Equal Load Sharing Fiber Bundle Model,” *Phys. Rev. E* **98**, 032117 (2018).
- 287 S. Kjelstrup, D. Bedeaux, A. Hansen, B. Hafskjold and O. Galteland, “Non-isothermal transport of multi-phase fluids in porous media. The entropy production,” *Front. Phys.* **6**, 126 (2018); Erratum *Front. Phys.* **7**, 110 (2019).
- 288 S. Kjelstrup, D. Bedeaux, A. Hansen, B. Hafskjold and O. Galteland, “Non-isothermal transport of multi-phase fluids in porous media. Constitutive equations,” *Front. Phys.* **6**, 150 (2019).
- 289 B. Skjetne and A. Hansen, “Implications of Realistic Fracture Criteria on Crack Morphology,” *Front. Phys.* **7**, 50 (2019).



- 290 S. Sinha, M. Aa. Gjennestad, M. Vassvik, M. Winkler, A. Hansen and E. G. Flekkøy, “Rheology of High Capillary Number Flows in Porous Media,” *Front. Phys.* **7**, 65 (2019).
- 291 S. Roy, A. Hansen and S. Sinha, “Effective rheology of two-phase flow in a capillary fiber bundle model,” *Front. Phys.* **7**, 92 (2019).
- 292 B. Zhao, C. W. MacMinn, B. K. Primkulov, Y. Chen, A. J. Valocchi, J. Zhao, Q. Kang, K. Bruning, J. E. McClure, C. T. Miller, A. Fakhari, D. Bolster, T. Hiller, M. Brinkmann, L. Cueto-Felgueroso, D. A. Cogswell, R. Verma, M. Prodanović, J. Maes, S. Geiger, M. Vassvik, A. Hansen, E. Segre, R. Holtzman, Z. Yang, C. Yuan, B. Chaeyre and R. Juanes, “Comprehensive comparison of pore-scale models for multiphase flow in porous media,” *Proc. Natl. Acad. Science*, **116**, 13799 (2019).
- 293 S. Pradhan, J. T. Kjellstadli and A. Hansen, “Variation of elastic energy shows reliable signal of upcoming catastrophic failure,” *Front. Phys.* **7**, 106 (2019).
- 294 J. T. Kjellstadli, E. Bering, M. Hendrick, S. Pradhan and A. Hansen, “Can Local Stress Enhancement Induce Stability in Fracture Processes? Part I: Apparent Stability,” *Front. Phys.* **7**, 105 (2019).
- 295 J. T. Kjellstadli, E. Bering, S. Pradhan and A. Hansen, “Can Local Stress Enhancement Induce Stability in Fracture Processes? Part II: The Shielding Effect,” *Front. Phys.* **7**, 156 (2019).
- 296 L. Talon and A. Hansen, “Effective rheology of bi-viscous non-Newtonian fluids in porous media,” *Front. Phys.* **7**, 225 (2020).
- 297 D. Bedeaux, E. G. Flekkøy, A. Hansen, K. J. Måløy, S. Kjelstrup and O. Torsæter, “Editorial: Physics of Porous Media,” *Front. Phys.* **8**, 3 (2020).
- 298 D. Bedeaux, E. G. Flekkøy, A. Hansen, S. Kjelstrup, K. J. Måløy and O. Torsæter, eds., *Physics of Porous Media* (Frontiers Media, Lausanne, 2020).
- 299 S. Roy, S. Sinha and A. Hansen, “Flow-Area Relations in Immiscible Two-Phase Flow in Porous Media,” *Front. Phys.* **8**, 4 (2020).
- 300 M. Aa. Gjennestad, M. Winkler and A. Hansen, “Pore Network Modeling of the Effects of Viscosity Ratio and Pressure Gradient on Steady State Incompressible Two-Phase Flow in Porous Media,” *Transp. Porous Media.* **132**, 355 (2020).
- 301 M. Winkler, M. Aa. Gjennestad, D. Bedeaux, S. Kjelstrup, R. Cabriolu and A. Hansen, “Onsager-Symmetry Obeyed in Athermal Mesoscopic Systems: Two-Phase Flow in Porous Media,” *Front. Phys.* **8**, 60 (2020).
- 302 S. Sinha, S. Roy and A. Hansen, “Phase Transitions and Correlations in Fracture Processes where Disorder and Stress Compete,” *Phys. Rev. Res.* **2**, 043108 (2020).
- 303 A. Hansen, “The Three Extreme Value Distributions: An Introductory Review,” *Front. Phys.* **8**, 604053 (2020).
- 304 A. Hansen, E. G. Flekkøy and B. Baldelli, “Anomalous Diffusion in Systems with Concentration-Dependent Diffusivity: Exact solutions and Particle Simulations,” *Front. Phys.* **8**, 519624 (2020).
- 305 S. Sinha, S. Roy and A. Hansen, “Crack Localization in a Disordered System: The Interplay between Stress Enhancement and Thermal Noise,” *Physica A*, **569**, 125782

- (2021).
- 306 H. Charan, A. Hansen, H. G. E. Hentschel and I. Procaccia, “Fatigue and Failure of a Polymer Chain under Tension,” *Phys. Rev. Lett.* **126**,085501 (2021).
- 307 S. Sinha, M. Aa. Gjennestad, M. Vassvik and A. Hansen, “A Dynamic Network Simulator for Immiscible Two-Phase Flow in Porous Media,” *Front. Phys.* **8**, 548497 (2021).
- 308 E. G. Flekkøy, A. Hansen and B. Baldelli, “Hyperballistic superdiffusion and explosive solutions to the non-linear diffusion equation,” *Front. Phys.* **9**, 640560 (2021).
- 309 W. Dębski, S. Pradhan and A. Hansen, “Criterion for imminent failure during loading — Discrete Element Analysis,” *Front. Phys.* **9**, 675309 (2021).
- 310 M. Fromreide and A. Hansen, “Predicting Motion Patterns Using Optimal Paths,” *Front. Phys.* **9**, 656296 (2021).
- 311 S. Roy, S. Sinha and A. Hansen, “Role of pore-size distribution on effective rheology of two-phase flow in porous media,” *Front. Water*, **3**, 709833 (2021).
- 312 A. Hansen, “2021 Frontiers in Physics Editor’s Pick,” (Frontiers Media SA, Lausanne, 2021).
- 313 H. Fyhn, S. Sinha, S. Roy and A. Hansen, “Rheology of immiscible two-phase flow in mixed wet porous media: Dynamic pore network model and capillary fiber bundle model results,” *Transport in Porous Media*, **139**, 491 (2021).
- 314 K. J. Måløy, M. Moura, A. Hansen, E. G. Flekkøy and R. Toussaint, “Burst dynamics, up-scaling and dissipation of slow drainage in porous media,” *Front. Phys.*, **9**, 796019 (2021).
- 315 A. Hansen, F. Kun, P. Ray and S. Pradhan, “Editorial: The fiber bundle,” *Front. Phys.* **9**, 795803 (2021).
- 316 J. Feder, E. G. Flekkøy and A. Hansen, “Physics of Flow in Porous Media,” ISBN 9781108839112 (Cambridge University Press, Cambridge, 2022).
- 317 A. Hutt, A. Grüning, A. Hansen, T. Hartung and R. Robeva, “Editorial: Machine Learning in Natural Complex Systems,” *Front. Appl. Math. Stat.* **8**, 869999 (2022).
- 318 S. Roy, H. Pedersen, S. Sinha and A. Hansen, “The co-moving velocity in immiscible two-phase flow in porous media,” *Transp. in Porous Media*, **143**, 69 (2022).
- 319 F. Lanza, A. Rosso, L. Talon and A. Hansen, “Non-Newtonian Rheology in a Capillary Tube with Varying Radius,” *Transp. in Porous Media*, **145**, 245 (2022).
- 320 A. Hansen, E. G. Flekkøy, S. Sinha and P. A. Slotte, “A statistical mechanics for immiscible and incompressible two-phase flow in porous media,” *Adv. Water Res.*, **171**, 104336 (2023).
- 321 H. L. Cheon, H. Fyhn, A. Hansen, Ø. Wilhelmsen and S. Sinha, “Steady-state two-phase flow of compressible and incompressible bubbles in capillary tube of varying radius,” *Transp. Porous Media*, **147**, 15 (2023).
- 322 H. Pedersen and A. Hansen, “Parameterizations of immiscible two-phase flow in porous media,” *Front. Phys.* **11**, 1127345 (2023).
- 323 H. Fyhn, S. Sinha and A. Hansen, “Local Statistics of Immiscible and Incompressible Two-Phase Flow in Porous Media,” *Physica A*, **616**,128626 (2023).

- 324 H. Fyhn, S. Sinha and A. Hansen, “Effective rheology of immiscible two-phase flow in porous media consisting of random mixtures of grains having two types of wetting properties,” *Front. Phys.* **11**, 1175426 (2023).
- 325 V. M. Schimmenti, F. Lanza, A. Hansen, S. Franz, A. Rosso, L. Talon and A. De Luca, “Darcy’s law of yield stress fluids on a treelike network,” *Phys. Rev. E*, **108**, L023102 (2023).
- 326 F. Lanza, S. Sinha, A. Hansen, A. Rosso, and L. Talon, “Transition from viscous fingers to foam during drainage in heterogeneous porous media,” *Physics of Fluids*, **35**, 103119 (2023).
- 327 S. Sinha, Y. Méheust, H. Fyhn, S. Roy and A. Hansen, “Disorder-induced non-linear growth of viscously-unstable immiscible two-phase flow fingers in porous media,” *Physics of Fluids*, **36**, 033309 (2024).
- 328 K. S. Olsen, A. Hansen and E. G. Flekkøy, “Hyper-ballistic superdiffusion of competing microswimmers,” *Entropy*, **26**, 274 (2024).
- 329 S. Roy, S. Sinha and A. Hansen, “Immiscible two-phase flow in porous media: Effective rheology in the continuum limit,” *Transport in Porous Media*, **151**, 1295 (2024).
- 330 F. Alzubaidi, J. E. McClure, H. Pedersen, A. Hansen, C. F. Berg, P. Mostaghimia and R. T. Armstrong, “The impact of the co-moving velocity of two-fluid flow in porous media,” *Transport in Porous Media*, **151**, 1967 (2024).
- 331 L. Talon, A. A. Hennig, A. Hansen and A. Rosso, “Influence of the imposed flow rate boundary condition on the flow of Bingham fluid in porous media,” *Phys. Rev. Fluids*, **9**, 063302 (2024).
- 332 A. Hansen, “Linearity of the co-moving velocity,” *Transp. Por. Med.* **151**, 2477 (2024).
- 333 A. Hansen, “How to define interdisciplinary physics. Is it at all possible? And should one?,” *Front. Phys.* **12**, 1495972 (2024).
- 334 H. A. Lima, E. E. M. Luis, I. S. S. Carrasco, A. Hansen, and F. A. Oliveira, “A geometrical interpretation of critical exponents,” *Phys. Rev. E*, **110**, L062107 (2024).
- 335 A. Hansen and S. Sinha, “Thermodynamics-like formalism for immiscible and incompressible two-phase flow in porous media,” *Entropy* **27**, 121 (2025).
- 336 C. G. L. Sousa, J. S. Andrade Jr., A. A. Moreira, C. I. N. Sampaio Filho, E. Eiser, A. Hansen and H. J. Herrmann, “Unlimited number of spanning clusters in 3D percolation above the critical point,” submitted to *Phys. Rev. Res.*
- 337 H. Pedersen and A. Hansen, “Geometric structure of parameter space in immiscible two-phase flow in porous media,” submitted to *Front. Phys.*, arXiv:2502.02251.
- 338 J. R. Da, S. Sinha, A. Hansen and S. B. Santra, “Mixed-wet percolation on a dual square lattice,” submitted to *Physica A*.
- 339 K. P. Olsen, B. Hafskjold, A. Hansen and A. Lervik, “A new thermodynamic function for binary mixtures: the co-molar volume,” submitted.