PUBLICATIONS AND INVITED CONFERENCES

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Contents

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132. "Molecular dynamics simulation of electrokinetic flow of an aqueous electrolyte solution in nanochannels" H. Yoshida, H. Mizuno, Hideyuki, K Tomoyuki, **J-L. Barrat** *J. Chem. Phys* **140**, 214701 (2014)

133. "Spatiotemporal correlations between plastic events in the shear flow of athermal amorphous solids" A. Nicolas; J. Rottler, **J-L. Barrat** *EPJ E* **37** 50 (2014)

134. "Rheology of athermal amorphous solids: Revisiting simplified scenarios and the concept of mechanical noise temperature" A. Nicolas, K. Martens, **J-L. Barrat** *EPL* **107** 44003 (2014)

135. "Acoustic excitations and elastic heterogeneities in disordered solids" H. Mizuno, S. Mossa, **J-L. Barrat** *PNAS* **111**, 11949 (2014)

136. "Generic transport coefficients of a confined electrolyte solution" H. Yoshida, H. Mizuno, Hideyuki, K Tomoyuki, **J-L. Barrat** *Phys. Rev E* **90**, 052113 (2014)

137. "Relaxation in Yield Stress Systems through Elastically Interacting Activated Events" E. Ferrero, K. Martens, **J-L. Barrat** *Phys Rev Lett.* **113**, 248301 (2014)

138. "Plastic Deformation Mechanisms of Semicrystalline and Amorphous Polymers" S. Jabbari-Farouji, J. Rottler, O. Lame, M. Perez, **J-L. Barrat** *ACS Macro Letters* **4**, 147 (2015)

139. "Short- and medium-range orders in as-quenched and deformed SiO2 glasses: An atomistic study" P. Koziatek, **J-L. Barrat**. D. Rodney, *J. Non-Cryst Solids* **414**, 7 (2015)

140. "Elastic consequences of a single plastic event: Towards a realistic account of structural disorder and shear wave propagation in models of flowing amorphous solids" A. Nicolas, F. Puosi, H. Mizuno, **J-L. Barrat** *Journal of the mechanics and physics of solids* 78 333-351 (2015)

141. "Correlation of structure and mechanical response in solid-like polymers" S. Jabbari-Farrouji, J. Rottler, O Lame, M. Perez **J-L. Barrat**. *J. Phys Cond Matt* **27** 194131 (2015)

142. "On the relevance of disorder in athermal amorphous materials under shear" E. Agoritsas, E. Bertin, K. Martens, **J-L. Barrat** *EPJ E* **38** 71 (2015)

143. "Beating the amorphous limit in thermal conductivity by superlattices design" H. Mizuno, S. Mossa, **J-L. Barrat** *Scientific Reports* 5 14116 (2015)

144. "From Paris to Lyon, and from simple to complex liquids: a view on Jean-Pierre Hansen's contribution" **J-L. Barrat**, T. Biben, L. Bocquet, *Molecular Physics* **113** 2378 (2015)

145. "Edwards Thermodynamics for a Driven Athermal System with Dry Friction" G. Gradenigo, E. Ferrero, E. Bertin, **J-L. Barrat** *Phys. Rev Lett.* **115** 140601 (2015)

146. " Driving Rate Dependence of Avalanche Statistics and Shapes at the Yielding Transition" C. Liu, E. Ferrero, F. Puosi, , K. Martens, **J-L. Barrat** *Phys. Rev Lett.* **116** I065501 (2016)

147. "Role of inertia in the rheology of amorphous systems: A finite-element-based elastoplastic model" K. Karimi, **J-L. Barrat** *Phys. Rev E* **93** 022904 (2016)

148. " Cutoff nonlinearities in the low-temperature vibrations of glasses and crystals" H. Mizuno, L. Silbert, M. . Sperl,, **J-L. Barrat** *Phys. Rev E* **93** 043314 (2016)

149. "Analytical correlation functions for motion through diffusivity landscapes" F. Roosen-Runge, D. Bicout, **J-L. Barrat** *J. Chem. Phys* **144** , 204109 (2016)

150. "Plastic response and correlations in athermally sheared amorphous solids" F. Puosi, J. Rottler,, **J-L. Barrat** *Phys. Rev E* 94, 032604 (2016)

151. "Simulation of entangled polymer solutions" A. Korolkovas, P. Gutfreund, **J-L. Barrat** *J. Chem. Phys.* **145** , 124113 (2016)

152. "Relation of vibrational excitations and thermal conductivity to elastic heterogeneities in disordered solids" H. Mizuno, S. Mossa, **J-L. Barrat** *Phys. Rev B* 94, 144303 (2016)

153. "Inertia and universality of avalanche statistics: The case of slowly deformed amorphous solids" K. Karimi, E. Ferrero, **J-L. Barrat** *Phys. Rev E* **95** 013003 (2017)

154. "Non-linear rheology in a model biological tissue" D. A. Matoz-Fernandez, E Agoritsas, **J-L. Barrat**, E. Bertin, K Martens *Phys. Rev. Lett,*, **118**, 158105 (2017) [Editor's suggestion]

155. "Cell division and death inhibit glassy behaviour of confluent tissues" D. A. Matoz-Fernandez, K. Martens, R. Sknepnek, **J-L. Barrat**, S. Henkes, *Soft Matter,*, in press

156. "Role of the intercrystalline tie chains network in the mechanical response of semicrystalline polymers" S. Jabbari, M. Perez, O. Lame, J. Rottler, **J-L. Barrat**, *Phys. Rev. Lett,*, in press

4 CONFERENCE PROCEEDINGS

1. "Molecular dynamics of supercooled liquids near the glass transition" **J-L. Barrat**, J-N Roux, Proceedings of the international meeting on relaxation in complex systems, *J. Non-Cryst. Sol.* **131** , 255 (1991)

2. "Hydrodynamic properties of confined fluids" L. Bocquet and **J-L. Barrat** Proceedings of the European Conference on Liquid Matter (Norwich, Juillet 1997) *J. Phys. Condens. Matter* **8**, 9297-9300 (1996).

3. "Aging in a simple glassformer" W. Kob, **J-L. Barrat**, F. Sciortino, P. Tartaglia "Unifying Concepts in Glass Physics", ICTP, Trieste. *J. Phys. Condens. Matter*, **12**, 6385 (2000)

4. "Aging in a Structural Glass", W, Kob and **J-L. Barrat**, Invited talk for STATPHYS 20, Paris, 1998 (*Physica*, 1999).

5. "Aging in a simple glass former" W. Kob W, **J-L. Barrat**, F. Sciortino, P. Tartaglia *J. Phys. Condensed Matter* **12** 6385 (2000)

6. "Ageing, rheology and effective temperature in a glass-forming system" **J-L. Barrat**, Proceedings of the European Liquid Matter Conference, Konstanz; *J. Phys. Condensed Matt.* **15**, S1 (2003)

7. "Study of phonon heat transfer in metallic solids from molecular dynamic simulations", P. Chantrenne, M. Raynaud, D. Baillis, **J-L. Barrat**, *Microscale Thermophysical Engineering*, **7**, 117 (2003)

8. "Vibrations of amorphous nanometric structures: when does the classical continuum theory apply?", A. Tanguy, F. Leonforte, J.P. Wittmer, **J.L. Barrat** , *Applied Surface Science* **226**, 282 (2004)

9. "Effective temperatures in a simple model of non-equilibrium, non-Markovian dynamics" P. Ilg, **J.-L. Barrat** *Journal of Physics: Conference Series* **40** 76 (2006)

10. "Tracer diffusion in a soft glassy material" L. Petit, C. Barentin, J. Colombani, C. Ybert, **JL. Barrat**, L. Bocquet, *XVth International Congress On Rheology - The Society Of Rheology 80Th Annual Meeting,Aip Conference Proceedings* **1027** 734, (2008)

11. "Simulation of heat transfer around nanoparticles" J-L. Barrat, S. Merabia, L. Joly, M. Vladkov *Proceedings Of The Asme Micro/Nanoscale Heat And Mass Transfer International Conference, Vol 3* 283-286 (2010)

5 LECTURES IN SUMMER SCHOOLS

1. "Calcul des propriétés de transport par dynamique moléculaire". Ecole d'été "Simulation de systèmes complexes" (Dijon, Juin 1995) - 4h lectures.
2. "Hydrodynamique à petite échelle et relaxations lentes dans les liquides" Ecole de Physique Statistique de Beg Rohu "Systèmes vitreux et dynamique lente", France, Avril 1996. 20 hours lectures.
3. "Mode Coupling Theories" NATO ASI on Glasses (Organized by R. Jullien), Cargese 1999, 6h lectures.
4. "Introduction to the Physics of Glasses" CNRS Summer school, AUtrans, June 2004, 6 hours lectures.
5. "Glasses and Ageing" Séminaire transalpin de physique, Champex, Mars 2006, 2 hours
6. "Introduction la physique des liquides" Ecole "Mecanique Physique" du GDR Midi, Porquerolles, Septembre 2006, 3 hours.
7. "From micro to macroscale: examples from hydrodynamics, elasticity and plasticity" Granada school on computational physics Septembre 2008, 4 hours.
8. "Examples of multiscale modeling" Les Houches doctoral school "frontiers in condensed matter", September 2010, 6 hours.
9. "Elasticity and plasticity of glasses", JNCAS School on glasses, Bangalore, February 2011, 4 hours.
10. "Deformation of amorphous materials", Minerva School, Weizmann Institute, February 2012, 4 hours.
11. "Coarse grained simulation for materials and interfaces", Les Houches summer school, July 2012, 5h
12. "Elasticity and plasticity in amorphous materials, a statistical perspective" Fundamental problems in statistical physics 14, Bruneck, July 2017

6 INVITED TALKS IN INTERNATIONAL CONFERENCES

1. "Computer simulation of supercooled fluids" International meeting on relaxation in complex systems, Heraklion, Crete. (Juin 1991)
2. "Molecular dynamics of diffusion in liquids" Taniguchi conference on Molecular Dynamics, Ise Shima, Japon (Novembre 1991)
3. "Molecular dynamics in supercooled fluids near the glass transition" Gordon conference "Physics and Chemistry of liquids" Plymouth, New Hampshire, USA (Aout 1992)
4. "Simulation of a charged bead spring chain" CECAM Workshop "Computer simulation in polymer science" Orsay (Juillet 1992)
5. "Persistence length of charged polymer chains" Materials Research Society Meeting, Symposium on complex fluids (Boston, Décembre 1993)
6. "Dynamics of confined fluids and hydrodynamic boundary conditions" International workshop "Molecular aspects of confined fluids" (Les Houches, Février 1994)
7. "Simulation and theory of simple supercooled fluids" Euroconference "Neutrons in disordered matter" (Stockholm, Juin 1994)
8. "Structure of charged polymer chains" Institute of Theoretical Physics Workshop on Biomolecular Materials (Santa Barbara, USA, Aout 1994)

9. "Dynamical properties of polyelectrolytes" CECAM meeting on "Numerical studies of polyelectrolytes" (Lyon, Mars 1995)

10. "Mode coupling theories and simulation results on the glass transition". International workshop on "Recent advances in the theory of disordered systems: spin glasses, random fields, random polymers" (Saclay, July 1995)

11. "Numerical simulation of glass forming systems" Workshop CECAM on Glassy and Disordered Systems, Lyon, September 1996.

12. "Amorphisation and Glass transition in a model of Silica" CECAM workshop "Simulation of Silica", Lyon, September 1997.

13. "Aging and Fluctuation Dissipation ratio in a Lennard Jones glass" ITP conference on "Jamming and Rheology", Santa Barbara, October 1997.

14. "Aging in a supercooled Lennard Jones liquid" International workshop on supercooled liquids and glasses, Pise, September 1998.

15. "Large slip effects at a nonwetting fluid-solid interface" Faraday discussion "Physical Chemistry in the mesoscopic regime" Chester, April 1999.

16. "Simulation studies of the glass transition" CECAM 30th anniversary conference, Lyon, May 1999.

17. "Dynamics of thin liquid films" Adriatico Research Conference "Liquid Matter", Trieste, June 1999.

18. "Supercooled liquids. What do we learn from nonequilibrium simulations ?" European Liquid Matter Conference, Grenade, Juillet 1999.

19. "Simulating glassy systems" CCP5 annual conference, University of Surrey, Juillet 2000.

20. "Dynamics of forced glassy systems" 4th International conference on relaxation in complex systems, Heraklion, Juin 2001

21. "Dynamics at the liquid solid interface" Workshop on friction, CECAM, Lyon, Aout 2001

22. "Dynamics of linear and entangled polymers", Simu Conference "Bridging the time scale gap", Konstanz, Septembre 2001

23. "Effective temperature and nonlinear rheology in a sheared glassy system" Berkeley Mini Stat. Mech. Meeting 2002, Berkeley, Janvier 2002.

24. "Effective temperature and nonlinear rheology in a sheared glassy system", Conference "Unifying Concepts in Glass Physics", Rome, Mars 2002.

25. "Off equilibrium dynamics in glassy systems", Plenary talk at the 5th European Liquid state conference, Konstanz, Septembre 2002.

26. "Rheology of amorphous solids by MD simulations" International conference on Molecular simulation, Tsukuba, Japon, Janvier 2004

27. "Elastic inhomogeneities in amorphous solids" XIXth Sitges Conference on Statistical Physics, Sitges, June 2004

28. "Effective temperature in driven systems" CECAM workshop on Fluctuations in nonequilibrium systems, Lyon, July 2004

29. "Nanorheology" SIMU/ESF conference "Bridging the gap", Genoa, August 2004

30. "Hydrophobic Dewetting Effects on Interfacial Dynamics" Mini Stat. Mech. Meeting, Berkeley January 2005

31. "Theories of the glass transition" Tutorial lecture, American Physical Society March meeting, Los Angeles, March 2005

32. "Shearing glassy systems: Insight from computer simulations" Invited lecture, American Physical Society March meeting, Los Angeles, March 2005.

33. "Nonequilibrium dynamics in glassy systems" Plenary conference, 5th International discussion meeting on relaxation in complex systems, Lille, July 2005.

34. "Simulation of elastic properties in complex systems." Erice, July 2005.

35. "Elastic and plastic response in model glasses" KITP workshop "From atomic to tectonics", Santa Barbara, August 2005.

36. "Slip length and Kapitsa length at the solid liquid interface", CCP5 mesoscale modelling Ccnference, Oxford, March 2006

37. "Heat and Mass transfer at the solid liquid interface", NIST conference on thermophysics, Boulder, August 2006

38. "Local dynamics and entanglements in a polymer melt", Cecam workshop "Polymers at Interfaces", Lyon, October 2006.

39. "Interfacial transport properties" Mainz Materials Days, Mainz, June 2007

40. "Heat transfer at the solid liquid interface: implications for nanofluids" International conference on nnanofluids, Copper Mountain, Colorado, October 2007

41. "Rheology of glassy systems", Réunion annuelle de la société hollandaise de physique (FOM), Veldhoven, Janvier 2008

42. "Shear flow in dense colloids" Transregio SFB on Colloid Research, Bonn, Mars 2008

43. "Towards a multiscale modelling of amorphous systems" ESF Conference "Bridging length and time scales", Konstanz, Avril 2008

44. "Interfacial transport" Beijing KITP workshop on nanofluidics and microfluidics, May 2008, invited participant

45. "Elasticity and plasticity of glasses" Leiden Lorentz center workshop on glasses, August 2008

46. "Heat transfer and velocity slip at fluid solid interfaces" Juelich Soft Matter days, November 2008

47. "The jamming transition under shear" Euromech conference, Lisbon, September 2009

48. "Simulation of heat transfer from nanoparticles" ASME Conference on Micro-Nanoscale heat transfer, Shanghai, December 2009

49. "Jamming transition of frictionless grains probed by shear flow" KITP Conference "Emerging concepts in glass physics", Santa Barbara, June 2010

50. "Elasticity of disordered systems", CODEF conference, Cargese, September 2010.

51. "Deformation of amorphous and nanostructured polymers", ESPCI Michelin international meeting, December 2010.

52. "Plasticity of amorphous materials", CECAM workshop on mechanical properties of amorphous systems, Dublin, July 2011

53. Round table discussion panel member, SIMBIOMA conference, Konstanz, October 2011

54. "Heat transfer with molecular dynamics", HotNano Symposium, Leipzig, October 2011

55. "Viscosity divergence in suspensions at the jammig transition", Workshop on Complex transport in strongly interacting systems, Munich, July 2012

56. "Dynamical correlations and viscosity divergence in athermal systems at jamming", Statistical Mechanics: Interplay of Theory and Computer Simulations, in honor of K. Binder, Mainz, 19 - 21 September 2012

57. "Multiscale Modeling of Amorphosu Materials" Multiscale Materials Modeling 5, , Singapore, October 2012 (plenary speaker)

58. "Sheared athermal systems at jamming" 7th International discussion meeting on relaxation in complex systems, Barcelona, July 2013

59. "Mesoscale modeling of flowing suspensions" Faraday Discussion 167 on mesostructures in liquids, Bristol, September 2013.

60. "Quantitative modeling of a microemulsion flow" Schloss Ringberg, Max Planck Society meeting, May 2014

61. "Elastic properties of disordered systems" Heraeus School, Köln September 2014

62. "Mean field models of deformation", Workshop on Amorphous Solids, UNAM-Cuernavaca, March 2015

63. "Simple models of deformation in amorphous solids" Workshop on dynamics in hard and soft condensed matter, Buenos Aires 2015

64. "Mesoscale models of flow in glassy solids", Nonlinear response to probe vitrification, Innsbruck 2015

65. "Elastoplastic models for amorphous plasticity" Avalanches, plasticity, and nonlinear response in nonequilibrium solids, Kyoto March 2016

66. "Effect of inertia in the rheology of amorphous solids" Out-of-Equilibrium and Active Soft Matter, Roscoff June 2016

67. "Elastoplastic models of plasticity in disordered systems" Statphys 26, Lyon, July 2016

68. "Statistics of avalanches in elastoplastic models of deformed solids", Nonlinear Response in Complex Matter, Primosten, September 2016

69. "Simulating mechanical properties of nanostructured polymers with coarse grained models" , Multiscale Simulation Methods in Soft Matter Systems, Darmstadt 2016

70. "Simulating mechanical properties of nanostructured polymers with coarse grained models ", 8th International conference on Multiscale Materials Modelling, Dijon, October 2016

71. "Dynamical properties of a simple model of living tissue", Recent Advances on the Glass and Jamming Transitions, Lausanne 2017

7 INVITED TALKS IN NATIONAL CONFERENCES

1. "Gels de polyélectrolytes" Journées "Polymères et Colloïdes 1992", Grenoble, (April 1992)

2. "Introduction aux théories de couplage de modes" Colloque "Assemblages moléculaires complexes" (Lyon, May 1993)

3. "Coefficients de transport et dynamique moléculaire" Séminaire Daniel Dautreppe "Expérimentation Numérique" (Grenoble. Septembre 1993)

4. "Polyélectrolytes en solution" Journées de la matière condensée de la Société Française de Physique, plenary talk (Rennes, September 1994)

5. "Physique statistique des polyélectrolytes" Atelier de travail "Assemblages moléculaires complexes". (Paris, September 1994)

6. "Simulation Numérique de SiO2 à haute température et haute pression" Journées simulation numérique et expérience, Université Paris 6, June 1996.

7. "Modélisation des agrégats à l'échelle atomique" GDR Agrégats, Lyon, November 1997.

8. "Dynamique des systèmes vitreux forcés" Journées de la Matière Condensée, Société Française de Physique, Poitiers, September 2000.

9. "Physique statistique de systèmes hors équilibre" Conférence de la SFP, Strasbourg, July 2001

10. "Rhéologie et réponse hors équilibre de systèmes vitreux" Conférence aux journées de Physique statistique, Paris, January 2003

11. "Fluides confinés" Journées de la matière condensée de la SFP, Nancy, Septembre 2004. (conférence semi-plénière)

12. "Modélisation des séparations de phase dans les polymères et copolymères" Journées d'automne de la Société Franaise de Métallurgie, Paris, Octobre 2005.

13. "Modélisation de la rhéologie des systmes vitreux mous", Groupe franais de Rhéologie, Lyon, Décembre 2010

14. "Elasticité et plasticité des verres", Congrès Français de Mécanique, Besançon, Août 2011.