Bibliography

[1] R. A. Adams. *Sobolev Spaces.* Academic Press, 1975.

[2] S. Albeverio, Z. Brzeźniak and J.-L. Wu. Existence of global solutions and invariant measures for stochastic differential equations driven by Poisoon type noise with non-Lipschitz coefficients. *Preprint 2009.*

[3] S. Albeverio, F. Flandoli and Y.G. Sinai. *SPDE in hydrodynamic: recent progress and prospects. Lectures given at the C.I.M.E. Summer School held in Cetraro, August 29–September 3, 2005. Edited by Giuseppe Da Prato and Michael Röckner. Volume 1942 of Lecture Notes in Mathematics.* Springer-Verlag, Berlin; Fondazione C.I.M.E., Florence, 2008.

[4] D. Applebaum. *Lévy Processes and Stochastic Calculus,* Volume 93 of *Cambridge studies in advanced mathematics*, Cambridge University Press, 2004.

[5] V.V. Backlan. On the existence of solutions of stochastic equations in Hilbert space, *Depov. Akad. Nauk. Ukr. USR.*, 10:1299–1303, 1963.

[6] D.R. Bell and S.-E.A. Mohammed. Degenerate stochastic differential equations, flows, and hypoellipticity. *Stochastic analysis, Volume 57 of Proc. Sympos. Pure Math., Amer. Math. Soc.* Providence, RI, 553–564, 1995.

[7] A. Bensoussan. Some existence results for stochastic partial differential equations. In *Partial Differential Equations and Applications(Trento 1990)*, volume 268 of *Pitman Res. Notes Math. Ser.*, pages 37–53. Longman Scientific and Technical, Harlow, UK, 1992.

[8] A. Bensoussan. Stochastic Navier-Stokes Equations. *Acta Applicandae Mathematicae*, 38:267–304, 1995.

[9] A. Bensoussan and R. Temam. Equations aux dérivées partielles stochastiques non linéaires, *Israel J. Math.*, 11:95–129, 1972.

[10] A. Bensoussan and R. Temam. Equations Stochastiques du Type Navier-Stokes. *Journal of Functional Analysis*, 13:195–222, 1973.

[11] J. M. Bernard. Weak and Classical Solutions of equations of Motion for Second Grade Fluids. *Comm. Appl. Nonlinear Anal.*, 5(4):1–32, 1998.

[12] J. M. Bernard. Stationary Problem of Second-grade Fluids in Three Dimensions: Existence, Uniqueness and Regularity. *Math. Meth. Appl. Sci.*, 22: 655-687, 1999.

[13] K. Bichteler. *Stochastic Integration With Jumps.* Cambridge University Press, 2002.

[14] A. Bonito, P. Clément, and M. Picasso. Mathematical analysis of a simplified Hookean dumbbells model arising from viscoelastic flows. *J. Evol. Equ.*, 6:381–398, 2006.

[15] H. Breckner. *Approximation and optimal control of the stochastic navier-Stokes equation* Dissertation, Martin-Luther University, Halle-Wittenberg, 1999.

[16] Z. Brzeźniak and L. Debbi. On stochastic Burgers equation driven by a fractional Laplacian and space-time white noise. *Stochastic differential equations: Theory and applications,* Interdiscip. Math. Sci., 2, World Sci. Publ., pages 135–167, 2007.

[17] Z. Brzeźniak and D. Gątarek. Martingale solutions and invariant measures for stochastic evolution equations in Banach spaces. *Stochastic Process. Appl.* 84(2):187–225, 1999.

[18] Z. Brzeźniak and Y. Li. Asymptotic compactness and absorbing sets for 2D stochastic Navier-Stokes equations on some unbounded domains. *Trans. Amer. Math. Soc.* 358(12):5587–5629, 2006.

[19] Z. Brzeźniak, B. Maslowski and J. Seidler. Stochastic nonlinear beam equation. *PTRF.* 132(2):119–144, 2005.

[20] Z. Brzeźniak and S. Peszat. Stochastic two dimensional Euler equations. *Ann. Probab.* 29(4):1796–1832, 2001.

[21] A.V. Busuioc. On second grade fluids with vanishing viscosity. *C. R. Acad. Paris, Série I*, 328(12):1241–1246, 1999.

[22] A.V. Busuioc and T.S. Ratiu The second grade fluid and averaged Euler equations with Navier-slip boundary conditions *Nonlinearity*. 16:1119-1149, 2003.

[23] M. Capiński and N.J. Cutland Navier-Stokes equation with multiplicative noise. *Nonlinearity*, 6:71–77, 1993.

[24] M. Capiński and N.J. Cutland Statistical solutions of stochastic Navier-Stokes equations. *Indiana Univ. Math. J.* 43(3):927–940, 1994.

[25] M. Capiński and S. Peszat. On the existence of a solution to stochastic Navier-Stokes equations. *Nonlinear Anal.* 44(2) Ser. A: Theory Methods, pp 141–177, 2001.

[26] T. Caraballo, J.A. Langa and T. Taniguchi. The Exponential Behaviour and Stabilizability of Stochastic 2D-Navier-Stokes Equations. *Journal of Differential Equations*. 179:714–737, 2002.

[27] T. Caraballo, A.M. Márquez-Durán, and J. Real. The Asymptotic Behaviour of a Stochastic 3D LANS-α Model. *Appl. Math. Optim.*, 53:141–161, 2006.

[28] T Caraballo, J. Real, and T. Taniguchi. On the existence and uniqueness of solutions to stochastic three-dimensional Lagrangian averaged Navier-Stokes equations. *Proc. R. Soc. A*, 462:459–479, 2006.

[29] J.-Y Chemin. *Perfect Incompressible Fluids*. Clarendon-Oxford University Press.

[30] S. Chen, C. Foias, E. Titi and S. Wynne A connection between the Camassa-Holm equations and turbulent flows in channels and pipes. *Phys. Fluids* 11:2343–2353, 1999.

[31] P.-L. Chow. *Stochastic Partial Differential Equations*. Chapman& Hall/CRC, 2007.

[32] D. Cioranescu and V. Girault. Weak and classical solutions of a family of second grade fluids. *Int. J. Non-Linear Mechanics*. 32(2):317–335, 1997.

[33] D. Cioranescu and E. H. Ouazar. Existence and uniqueness for fluids of second grade. In *Nonlinear Partial Differential Equations*, Collège de France Seminar, Pitman 109, pages 178–197. 1984.

[34] D. Cioranescu and E. H. Ouazar. Existence et unicité pour les fluides de grade deux. *C. R. Acad. Sci. Paris, Série I*, 298(13):285–287, 1984.

[35] P. Constantin and C. Foias. *Navier-Stokes Equations*. Chicago Lectures in Mathematics. The University of Chicago Press, Chicago, 1988.

[36] G. Da Prato and J. Zabczyk. *Stochastic Equations in Infinite Dimensions*. Cambridge University Press, 1992.

[37] G. Da Prato and A. Debussche 2D stochastic Navier-Stokes equations with a time-periodic forcing term. *J. Dynam. Differential Equations*. 20(2):301–335, 2008.

[38] G. Deugoue, M. Sango, On the stochastic 3D Navier-Stokes-alpha model of fluids turbulence. *Abstract and Applied Analysis*. Volume 2009, Article ID 723236, 27 pages.

[39] G. Deugoue and M. Sango On the Strong Solution for the 3D Stochastic Leray-Alpha Model *Boundary Value Problems,* Volume 2010, Article ID 723018, 31 pages.

[40] J. E. Dunn and R. L. Fosdick. Thermodynamics, stability and boundedness of fluids of complexity two and fluids of second grade. *Arch. Rat. Mech. Anal.* 56(3):191–252, 1974.

[41] J. E. Dunn and K. R. Rajagopal. Fluids of differntial type: Critical review and thermodynamic analysis. *Int. J. Engng. Sci.*, 33(5): 668–729, 1995.

[42] W. E and J.C. Mattingly and Y. Sinai. Gibbsian dynamics and ergodicity for the stochastically forced Navier-Stokes equation. Dedicated to Joel L. Lebowitz. *Comm. Math. Phys.* 224(1):83–106, 2001.

[43] B. Ferrario and F. Flandoli. On a stochastic version of Prouse model in fluid dynamics. *Stochastic Process. Appl.* 118(5):762–789, 2008.

[44] F. Flandoli and D. Gatarek. Martingale and stationary solutions for stochastic Navier-Stokes equations. *Probab. Theory Relat. Fields*, 102:367–391, 1995.

[45] G.B. Folland. *Real analysis.* Pure and Aplied Mathematics , John Wiley and Sons Inc. New York, 1999.

[46] C. Foias, D.D. Holm, and E.S. Titi. The Navier-Stokes-alpha model of fluid turbulence. Advances in nonlinear mathematics and science. *Phys. D*, 152/153:505–519, 2001.

[47] C. Foias, D.D. Holm, and E.S. Titi. The three dimensional viscous Camassa-Holm equations, and their relation to the Navier-Stokes equations and turbulence theory. *J. Dynam. Differential Equations.* 14(1):1–35, 2002.

[48] C. Foias, O. Manley, R. Rosa, and R. Temam. Navier-Stokes Equations and Turbulence. Volume 83 of *Encyclopedia of Mathematics and its Applications.* Cambridge University Press, 2001.

[49] R. L. Fosdick and K.R. Rajagopal. Anomalous features in the model of second grade fluids *Arch. Rational mech. Analysis.* 70:145–152, 1978.

[50] G. P. Galdi, M. Grobbelarr-Van Dalsen, and N. Sauer. Existence and uniqueness of classical solutions of the equations of motions for second grade fluids. *Arch. Rat. Mech. Anal.* 124:221–237, 1993.

[51] G. P. Galdi and A. Sequiera. Further existence results for classical solutions of the equations of second grade fluids. *Arch. Rat. Mech. Anal.*, 128:297–312, 1994.

[52] I. Gallagher The tridimensional Navier-Stokes equations with almost bidimensional data: stability, uniqueness, and life span. *Internat. Math. Res. Notices* . 18:919–935, 1997.

[53] I. I. Gikhman and A. V. Skorohod. *Stochastic Differential Equations.* Springer-Verlag, 1972.

[54] B. Goldys and B. Maslowski. Exponential ergodicity for stochastic Burgers and 2D Navier-Stokes equations. *J. Funct. Anal.* 226(1):230–255, 2005.

[55] M. Hairer and J.C. Mattingly. Ergodic properties of highly degenerate 2D stochastic Navier-Stokes equations. *C. R. Math. Acad. Sci. Paris.* 339(12):879–882, 2004.

[56] M. Hairer and J.C. Mattingly. Ergodicity of the 2D Navier-Stokes equations with degenerate stochastic forcing. *Ann. of Math. (2).* 164(3):993–1032, 2006.

[57] D. D. Holm, J. E. Marsden, and T. Ratiu. The Euler-Poincaré equations and semidirect products with applications to continuum theories. *Adv. in Math.* 137:1–81, 1998.

[58] D. D. Holm, J. E. Marsden, and T. Ratiu. Euler-Poincaré models of ideal fluids with nonlinear dispersion. *Phys. Rev. Lett.* 349:4173–4177, 1998.

[59] M.A. Hulsen, A.P.G. van Heel, and B.H.A.A. van den Brule. Simulation of viscoelastic flows using Brownian configuration fields. *J. Non-Newtonian Fluid Mech.* 70:79–101, 1997.

[60] D. Iftimie. Remarques sur la limite $\alpha \to 0$ pour les fluides de grade 2. *C. R. Acad. Sci. Paris, Ser. I*, 334(1):83–86, 2002.

[61] D. Iftimie. Remarques sur la limite $\alpha \to 0$ pour les fluides de grade 2. *Nonlinear partial differential equations and their applications. Collège de France Seminar, Vol. XIV, Stud. Math. Appl.* 31: 457–468, 2002.

[62] A.A. Ilyin, E.M. Lunasin, E.S. Titi. A modified Leray-α subgrid scale model of turbulence. *Nonlinearity.* 19 (2006), no. 4, 879–897.

[63] K. Itô. Stochastic integral. *Proc. Imper. Acad. Tokyo,* 20:519-524, 1944.

[64] J. Jacod and A.N. Shiryaev. *Limit Theorems for Stochastic Processes.* 2nd edition, Springer-Verlag, 2003.

[65] B. Jourdain and T. Lelièvre. Mathematical analysis of a stochastic differential equation arising in the micro-macro modelling of polymeric fluids. *Probabilistic Methods in Fluids Proceedings of the Swansea 2002 Workshop.* Davies, I.M., Jacob, N., Truman, A., Hassan, O., Morgan, K.,Weatherill, N.P. (eds.),World Scientific, pp. 205–223, 2003.

[66] B. Jourdain, T. Lelièvre, and C. Le Bris. Numerical analysis of micro-macro simulations of polymeric fluid flows: a simple case. *Math. Models Methods in Appl. Sci.* 12:1205–1243, 2002.

[67] B. Jourdain, C. Le Bris, and T. Lelièvre. On a variance reduction technique for micromacro simulations of polymeric fluids. *J. Non-Newtonian Fluid Mech.* , 122:91–106, 2004.

[68] B. Jourdain, T. Lelièvre, and C. Le Bris. Existence of solution for a micro-macro model of polymeric fluid: the FENE model. *J. Funct. Anal.* 209:162–193, 2004.

[69] B. Jourdain, C. Le Bris, T. Lelièvre, and F. Otto. Long-Time Asymptotics of a Multiscale Model for Polymeric Fluid Flows. *Arch. Rational Mech. Anal.*, 181:97–148, 2006.

[70] G. Kallianpur and J. Xiong. *Stochastic Differential equations in Infinite Dimensional Spaces.* Volume 26 of *IMS Lecture Notes-Monograph Series*, Institute of Mathematical Statistics, 1995.

[71] I. Karatzas and S.E. Shreve. *Brownian Motion and Stochastic Calculus.* GTM. Springer-Verlag, 1987.

[72] J.U. Kim. Martingale solutions of a stochastic wave equation with reflection. *J. Funct. Anal.* 254(9):2437–2469, 2008.

[73] N.N. Krylov and B.L. Rozovskii. Stochastic evolution equations. *J. Soviet Math.*, 14:1233–1277, 1981.

[74] S. Kuksin and A. Shirikyan. Ergodicity for the randomly forced 2D Navier-Stokes equations. *Math. Phys. Anal. Geom.* 4(2):147–195, 2001.

[75] S. Kuksin and A. Shirikyan. Randomly forced CGL equation: stationary measures and the inviscid limit. *J. Phys. A* 37(12):3805–3822, 2004.

[76] O. Ladyzhenskaya. *Attractors for Semigroups and Evolution Equations.* Cambridge University Press, Cambridge, UK, 1991.

[77] C. Le Roux. Existence and uniqueness of the flow of second-grade fluids with slip boundary conditions. *Arch. Ration. Mech. Anal.* 148(4):309–356, 1999.

[78] T. Li, E. Vanden-Eijnden, P. Zhang, and W. E. Stochastic models for polymeric fluids at small Deborah number. *J. Non-Newtonian Fluid Mech.*, 121:117–125, 2004.

[79] E. Lunasin, S. Kurien, M.A. Taylor, E.S. Titi. A study of the Navier-Stokes-α model for two-dimensional turbulence. *J. Turbul.* 8 (2007), Paper 30, 21 pp.

[80] W.D. McComb *The Physics of Fuid Turbulence*, Volume 25 of *Oxford Engineering Science Series*. Clarendon Press, Oxford, 1990.

[81] J.-L. Menaldi and S.S. Sritharan. Stochastic 2-D Navier-Stokes equations *Appl. Math. Optim.* 46:31?53, 2002.

[82] M. Metivier. *Semimartingales*, de Gruyter, 1982.

[83] R. Mikulevicius and B.L. Rozovskii. Stochastic Navier-Stokes Equations and Turbulent Flows. *SIAM J. Math. Anal.*, 35(5):1250-1310, 2004.

[84] S.E.A. Mohammed and M.K.R. Scheutzow. Lyapunov Exponents of Linear and Stochastic Functional Differential Equations Driven by Semimartingales, Part I: The Multiplicative Ergodic Theory. *Annals of Institute of Henri Poincare, Probabilites et Statistiques* 32(1):69–105, 1996.

[85] S.-E.A. Mohammed and M.K.R. Scheutzow. Spatial estimates for stochastic flows in Euclidean space. *Ann. Probab.* 26(1):56–77, 1998.

[86] S.-E.A. Mohammed. Stochastic dynamical systems in infinite dimensions. *Trends in stochastic analysis*. Volume 353 of London Math. Soc. Lecture Note Ser., Cambridge Univ. Press, Cambridge:249–282, 2009.

[87] S.-E.A. Mohammed and T.S. Zhang. Dynamics of Stochastic 2D Navier-Stokes Equations. *Journal of Functional Analysis*. 258(10):3543–3591, 2010.

[88] A. S. Monin and A. M. Yaglom. *Statistical fluid mechanics: mechanics of turbulence.* Volume II. Translated from the 1965 Russian original. Dover Publications, Inc., Mineola, NY, 2007.

[89] W. Noll and C. Truesdell. *The Nonlinear Field Theory of Mechanics*, Volume III of *Handbuch der Physik*. Springer-Verlag, Berlin, 1975.

[90] A. P. Oskolkov. Solvability in the large of the first boundary-value problem for a quasilinear third-order system pertaining to the motion of a viscuous fluid *Journal of Soviet Mathematics.* 3(4):508–521, 1975.

[91] A. P. Oskolkov. The uniqueness and gloal solvability of boundary-value problems for the equations of motions for acqueous solutions of polymers *Journal of Soviet Mathematics.* 8(4):427–455, 1977.

[92] H.C. Öttinger. *Stochastic processes in polymeric fluids*. Springer-Verlag, Berlin, 1996.

[93] E.H. Ouazar. Sur les Fluides de Second Grade. *Thèse 3ème Cycle.* Université Pierre et Marie Curie, 1981

[94] E. Pardoux. *Equations aux dérivées partielles stochastiques monotones*. Thèse de Doctorat, Université Paris-Sud, 1975.

[95] S. Peszat and J. Zabczyk. *Stochastic Partial Differential Equations with Levy Noise. An evolution equation approach*. Volume 113 of *Encyclopedia of Mathematics and its Applications*, Cambridge University Press, 2007.

[96] P.E. Protter. *Stochastic Integration and Differential Equations,* Volume 21 of *Stochastic Modelling and Applied Probability*, Springer-Verlag, Berlin, 2005.

[97] K.R. Rajagopal and C. Truesdell. *An Introduction to the Mechanics of Fluids,* Reprint of the 1999 edition, Birkhäuser, Boston, 2000.

[98] P.A. Razafimandimby. On stochastic models describing the motions of randomly forced linear viscoelastic fluids, *Journal of Inequalities and Application*. Volume 2010, Article ID 932053, 27 pages, 2010.

[99] P. A. Razafimandimby and M. Sango. Weak solutions of a stochastic model for two-dimensional second grade fluids. *Boundary Value Problems*. Volume 2010, Article ID 636140, 47 pages, 2010.

[100] P. A. Razafimandimby and M. Sango. Asymptotic behavior of solutions of stochastic evolution equations for second grade fluids. *To appear in C. R. Math. Acad. Sci. Paris*, 2010.

[101] P. A. Razafimandimby and M. Sango. Strong solutions of the stochastic equations for the two dimensional second grade fluids: Existence, Uniqueness, and Stability. *Preprint: http://users.aims.ac.za/˜ paul/publications.html.*

[102] M. Reed and B. Simon *Methods of Modern Mathematical Physic I: Functional Analysis*. Academic Press, 1972.

[103] D. Revuz and M. Yor. *Continuous Martingales and Brownian Motion*. Volume 293 of *Grundlehren der mathematischen Wissenschaften*. Springer-Verlag, Berlin, 1999.

[104] R.S. Rivlin The relation between the flow of non-Newtonian fluids and turbulent Newtonian fluids. *Q. Appl. Math.* 15:212-215, 1957.

[105] M. Sango. Weak solutions for a doubly degenerate quasilinear parabolic equation with random forcing. *Discrete Contin. Dyn. Syst. Ser. B.* 7(4):885–905, 2007.

[106] M. Sango. Magnetohydrodynamic turbulent flows : Existence results. *Physica D.* 239:912-923, 2010.

[107] S. Shkoller. Geometry and curvature of diffeomorphism groups with H^1 metric and hydrodynamics. *J. Func. Anal.* 160:337–365, 1998.

[108] S. Shkoller. Smooth global Lagrangian flow for the 2D Euler and second-grade fluid equations. *Appl. Math. Lett.* 14:539–543, 2001.

[109] J. Simon. Compact sets in the space $L^p(0,T;B)$. *Annali Mat. Pura Appl.* 146(4):65–96, 1987.

[110] A.H.P. Skelland Non-Newtonian flow and Heat transfer. John Wiley & Sons, Inc. , New York, 1967.

[111] A. V. Skorokhod. *Studies in the Theory of Random Processes*. Addison-Wesley Publishing Company, 1965.

[112] V. A. Solonnikov. On general boundary problems for systems which are elliptic in the sense of A. Douglis and L. Nirenberg . I. *American Mathematical Society Translations*. 56:193–232, 1966.

[113] V. A.. Solonnikov. On general boundary problems for systems which are elliptic in the sense of A. Douglis and L. Nirenberg . II. *Proc. Steklov Inst. Math.* 92:269–339, 1968.

[114] R. Temam. Sur la stabilité et la convergence de la méthode des pas fractionnaires. *Ann. Mat. Pura Appl.* 79(4):191–379, 1968.

[115] R. Temam. *Navier-Stokes Equations*. North-Holland, 1979.

[116] R. Temam. *Infinite Dimensional Dynamical Systems in Mechanics and Physics*. Springer-Verlag, Berlin, 1988.

[117] R. Temam. *Navier-Stokes Equations and Nonlinear Functional Analysis*. SIAM, 1995.

[118] D. Vincenzi, S. Jin, E. Bodenschatz, and L.R. Collins. Stretching of polymers in Isotropic Turbulence: A Statistical Closure. *Physical Review Letters*. 98(024503):1–4, 2007.

[119] M. Viot. *Sur les solutions faibles des Equations aux dérivées partielles stochastiques non linéaires*. Thèse de Doctorat d'état, Université Paris-Sud, 1975.