Bibliography

[1] M. J. Ablowitz, and A. Zeppetella, Explicit solutions of Fisher's equation for a special wave speed, *Bulletin of Mathematical Biology* **41** (1979), 835–840.

[2] W. Amrein, A. Hinz, and D. Pearson, *Sturm-Liouville Theory, Past and Present*, Birkhäuser, 2005.

[3] S. Antman, The equations for large vibrations of strings, *The American Mathematical Monthly*, **87** 1980, 359–370.

[4] S. Antman, *Nonlinear Problems of Elasticity*, 2nd ed., Springer-Verlag, New York, 2005.

[5] D. Applebaum, Lévy processes — from probability to finance and quantum groups, *Notices of the Amer. Math. Soc.* **51** (2004), 1336-1347.

[6] V. I. Arnold, *Mathematical Methods of Classical Mechanics*, Second Edition, Springer-Verlag, New Yok, 1989.

[7] G. I. Barenblatt, *Scaling*, Cambridge University Press, Cambridge, 2003.

[8] G. Batchelor, *An introduction to Fluid Mechnics*, Cambridge University Press, Cambridge, 1967.

[9] G. Batchelor, *The Theory of Homogeneous Turbulence*, Cambridge University Press, Cambridge, 1953.

[10] P. W. Bridgeman, *Dimensional Analysis*, Yale University Press, 1922.

[11] G. Buttazzo, M. Giaquinta and S. Hildebrandt, *One-dimensional Variational Problems*, Oxford Science Publications, 1998.

[12] G. Buttazzo and B. Kawohl, On Newton's problem of minimal resistances, *Mathematical Intelligencier* **15** No. 4 (1993), 7–12.

[13] B. Dacorogna, *Introduction to the Calculus of Varitions*, Imperial College Press, 2004.

[14] J. Dieudonné, *Foundations of Mathematical Analysis*, Vol.1, Academic Press, 1969.

[15] R. Durrett, *Stochastic Calculus: A Practical Introduction*, CRC Press, 1996.

[16] M. S. P. Eastham, *The Spectral Theory of Periodic Differential Equations*, Scottish Academic Press, 1973.

[17] P. Embrechts and M. Maejima, *Selfsimilar Processes* Princeton University Press, 2002.

[18] L. C. Evans, *Partial Differential Equations*, AMS, 1998.

[19] L. C. Evans, *An Introduction to Stochastic Differential Equations*, available at: `http://math.berkeley.edu/ evans/SDE.course.pdf`.

[20] G. L. Eyink and K. R. Sreenivasan, Onsager and the theory of hydrodynamic turbulence, *Rev. Modern Phys.* **78** (2006), 87-135.

[21] R. Feynman, and A. Hibbs, *Quantum Mechanics and Path Integrals*, McGraw-Hill, 1965.

[22] R. A. Fisher, The wave of advance of advantageous genes, *Ann. Eugenics* **7** (1937), 353369.

[23] U. Frisch, *Turbulence: The Legacy of A. N. Kolmogorov*, Cambridge University Press, 1995.

[24] H. Goldstein, *Classical Mechanics*.

[25] M. E. Gurtin, *Introduction to Continuum Mechanics*, Academic Press, New York, 1981.

[26] D. D. Holm, *Geometric Mechanics*, Imperical College Press, 2008.

[27] L. Hörmander, *The Analysis of Linear Partial Differential Operators I*, Second Edition, Springer-Verlag, Berlin, 1990.

[28] J. D. Jackson, *Classical Electrodynamics*.

[29] M. Kac, Can one hear the shape of a drum?, *American Mathematical Monthly* **73** 1966, 1–23.

[30] J. Keizer, *Statistical Thermodynamics of Nonequilibrium Processes*, pringer-Verlag, 1987.

[31] C. Kittel, *Introduction to Solid State Physics*.

[32] P. Kloeden, and E. Platen, *Numerical Solution of Stochastic Differential Equations*.

[33] A. Kolmogorov, I. G. Petrovskii, and N. S. Piskunov, A study of the diffusion equation with increase in the amount of substance, and its application to a biological problem. In editor,

Selected Works of A. N. Kolmogorov, Vol. I, ed. V. M. Tikhomirov, 242–270, Kluwer, 1991 (translated from *Bull. Moscow Univ., Math. Mech.* **1**, (1937) 1–25).
[34] L. D. Landau and E. M. Lifshitz, *Fluid Mechanics*, 2nd ed., Pergamon Press, 1987.
[35] N. N. Lebedev, *Special Functions and their Applications*, Dover, New York, 1972.
[36] J. F. Marko, and E. Siggia, Stretching DNA, *Macromolecules* **26** (1995), 8759–8770.
[37] J. Mawhin and M. Willem, *Critical Point Theory and Hamiltonian Systems*, Springer-Verlag, 1989.
[38] R. Newburgh, J. Peidle, and W. Rueckner, Einstein, Perrin, and the reality of atoms: 1905 revisited, *Am. J. Phys.*, **74** (2006), 478–481.
[39] F. W. J. Olver, *Asymptotics and Special Functions*, Academic Press, New York, 1974.
[40] P. Olver, *Applications of Lie Groups to Differential Equations*, Second Edition, Springer-Verlag, New York, 1993.
[41] P. Olver, *Equivalence, Invariants, and Symmetry*, Cambridge University Press, New York, 1995.
[42] M. H. Protter and H. F. Weinberger, *Maximum Principles in Differential Equations*, reprinted edition, Springer-Verlag, New York, 1984.
[43] R. T. Rockafellar, *Convex Analysis*, Princeton University Press, 1970.
[44] R. S. Strichartz, *A Guide to Distribution Theory and Fourier Transforms*, World Scientific, 2003.
[45] S. R. S. Varadhan, *Probability theory*, Courant Lecture Notes, AMS, 2001.
[46] S. R. S. Varadhan, *Stochastic Process*, Courant Lecture Notes, AMS, 2007.
[47] G. B. Whitham, *Linear and Nonlinear Waves*, John Wiley & Sons, New York, 1974.
[48] D. Yong, Strings,chains and ropes, *SIAM Review*, **48** 2006, 771-781