

## References

- [1] Abu-Saris, R., S. Elaydi, and S. Jang, Poincaré type solutions of systems of difference equations, *J. Math. Anal. Appl.* **275** (2002), 69–83.
- [2] Adams, C.R., On the irregular cases of linear ordinary difference equations, *Trans. Amer. Math. Soc.*, **30** (1928), 507–541.
- [3] Agarwal, R.P., *Difference Equations and Inequalities*, Marcel Dekker, New York, 1992.
- [4] Ahlbrandt, C., and A. Peterson, *Discrete Hamiltonian Systems*, Kluwer Academic, Dordrecht, 1996.
- [5] Asplund, E., and L. Bungart, *A First Course in Integration*, Holt, Rinehart, and Winston, New York, 1966.
- [6] Barnett, S., *Introduction to Mathematical Control Theory*, Clarendon Press, Oxford, 1975.
- [7] Beddington, J.R., C.A. Free, and J.H. Lawton, Dynamic complexity in predator–prey models framed in difference equations, *Nature* **255** (1975), 58–60.
- [8] Bender, E., and S.A. Orszag, *Advanced Mathematical Methods for Scientists and Engineers*, McGraw-Hill, New York, 1978.
- [9] Benzaid, Z., and D.A. Lutz, Asymptotic representation of solutions of perturbed systems of linear difference equations, *Stud. Appl. Math.* **77** (1987), 195–221.
- [10] Beverton, R.J., and S.J. Holt, *The theory of fishing, In sea fisheries; Their Investigation in the United Kingdom*, M. Graham, ed., pp. 372–441, Edward Arnold, London, 1956.
- [11] Birkhoff, G.D., General theory of linear difference equations, *Trans. Amer. Math. Soc.* **12** (1911), 243–284.
- [12] Birkhoff, G.D., Formal theory of irregular linear difference equations, *Acta Math.* **54** (1930), 205–246.

- [13] Birkhoff, G.D., and W.J. Trjitzinsky, Analytic theory of singular difference equations, *Acta Math.* **60** (1932), 1–89.
- [14] Brauer, A., Limits for the characteristic roots of a matrix, II, *Duke Math. J.* **14** (1947), 21–26.
- [15] Brauer, F., and C. Castillo-Chávez, *Mathematical Models in Population Biology and Epidemiology*, Texts in Applied Mathematics 40, Springer-Verlag, New York, 2001.
- [16] Cadzow, J.A., *Discrete Time Systems*, Prentice-Hall, Englewood Cliffs, NJ, 1973.
- [17] Carlson, D.C., *The Stability of Finite Difference Equations*, Master's thesis, University of Colorado, Colorado Springs, 1989.
- [18] Carvalho, L.A.V., On a method to investigate bifurcation of periodic solutions in retarded differential equations, *J. Difference Equ. Appl.* **4**(1) (1998), 17–27.
- [19] Chihara, T.S., *An Introduction to Orthogonal Polynomials*, Gordon and Breach, New York, 1978.
- [20] Churchill, R.V., and J.W. Brown, *Complex Variables and Applications*, McGraw-Hill, New York, 2004.
- [21] Clark, C.W., A delay recruitment model of population dynamics with an application to baleen whale population, *J. Math. Biol.* **3** (1976), 381–391.
- [22] Coffman, C.V., Asymptotic behavior of solutions of ordinary difference equations, *Trans. Amer. Math. Soc.* **110** (1964), 22–51.
- [23] Cooke, K.L., and L.A. Ladéira, Applying Carvalho's method to find periodic solutions of difference equations, *J. Difference Equ. Appl.* **2** (1996), 105–115.
- [24] Cushing, J., *An Introduction to Structural Population Dynamics*, SIAM, Philadelphia, 1999.
- [25] Cushing, J., Cycle chains and the LPA model, *J. Difference Equ. Appl.* **9** (2003), 655–670.
- [26] Cushing, J., and S. Henson, Global dynamics of some periodically forced, monotone difference equations, *J. Difference Equ. Appl.* **7**(6) (2001), 859–872.
- [27] Cushing, J.M., R.F. Costantino, B. Dennis, R.A. Desharnais, and S.M. Henson, *Chaos in Ecology: Experimental Nonlinear Dynamics*, Academic Press, New York, 2003.
- [28] Dannan, F., The asymptotic stability of  $x(n+k) + ax(n) + bx(n-l) = 0$ , *J. Difference Equ. Appl.* **10**(6) (2004), 1–11.
- [29] Dannan, F., and S. Elaydi, Asymptotic stability of linear difference equations of advanced type, *J. Comput. Anal. Appl.* **6**(2) (2004).
- [30] Dannan, F., S. Elaydi, and V. Ponomarenko, Stability of hyperbolic and nonhyperbolic fixed points of one-dimensional maps, *J. Difference Equ. Appl.* **9** (2003), 449–457.
- [31] Derrick, W., and J. Eidswick, Continued fractions, Chebyshev polynomials, and chaos, *Amer. Math. Soc. Monthly* **102**(4), 1995, 337–344.
- [32] Devaney, R., *A First Course in Chaotic Dynamical Systems: Theory and Experiments*, Addison-Wesley, Reading, MA, 1992.
- [33] Drozdowicz, A., On the asymptotic behavior of solutions of the second-order difference equations, *Glas. Mat.* **22**(42), 1987, pp. 327–333.

- [34] Drozdowicz, A., and J. Popenda, Asymptotic behavior of the solutions of the second-order difference equations, *Proc. Amer. Math. Soc.* **99** (1987), 135–140.
- [35] Drozdowicz, A., and J. Popenda, Asymptotic behavior of the solutions of the second-order difference equations, *Fasc. Math.* **17** (1987), 87–96.
- [36] Eastham, M.S.P., *The Asymptotic Solutions of Linear Differential Systems*, Clarendon Press, Oxford, 1989.
- [37] Edelstein-Keshet, L., *Mathematical Models in Biology*, Random House, New York, 1988.
- [38] Elaydi, S., Asymptotics for linear difference equations I: Basic theory, *J. Difference Equ. Appl.* **5** (1999), 563–589.
- [39] Elaydi, S., Stability of Volterra difference equations of convolution type, *Proceedings of the Special Program at Nankai Institute of Mathematics* (ed. Liao Shan-Tao et al.), World Scientific, Singapore, 1993, pp. 66–73.
- [40] Elaydi, S., On a converse of Sharkovsky's theorem 423, *Amer. Math. Monthly* **103** (1996), 386–392.
- [41] Elaydi, S., Periodicity and stability of linear Volterra difference systems, *J. Math. Anal. Appl.* **181** (1994), 483–492.
- [42] Elaydi, S., An extension of Levinson's theorem to asymptotically Jordan difference equations, *J. Difference Equ. Appl.* **1** (1995), 369–390.
- [43] Elaydi, S., Asymptotics for linear difference equations II: Applications, in *New Trends in Difference Equations*, Taylor & Francis, London, 2002, pp. 111–133.
- [44] Elaydi, S., and I. Gyori, Asymptotic theory for delay difference equations, *J. Difference Equ. Appl.* **1** (1995), 99–116.
- [45] Elaydi, S., and O. Hajek, Exponential dichotomy and trichotomy of nonlinear differential equations, *Differential Integral Equations* **3** (1990), 1201–1224.
- [46] Elaydi, S., and W. Harris, On the computation of  $A^n$ , *SIAM Rev.* **40**(4) (1998), 965–971.
- [47] Elaydi, S., and S. Jang, Difference equations from discretization of continuous epidemic models with disease in the prey, *Canad. Appl. Math. Quart.* (to appear).
- [48] Elaydi, S., and K. Janglajew, Dichotomy and trichotomy of difference equations, *J. Difference Equ. Appl.* **3** (1998), 417–448.
- [49] Elaydi, S., and S. Murakami, Asymptotic stability versus exponential stability in linear Volterra difference equations of convolution type, *J. Difference Equ. Appl.* **2** (1996), 401–410.
- [50] Elaydi, S., and R. Sacker, Basin of attraction of periodic orbits and population biology (to appear).
- [51] Elaydi, S., and S. Zhang, Stability and periodicity of difference equations with finite delay, *Funkcial. Ekvac.* **37** (1994), 401–413.
- [52] Epstein, J.M., *Calculus of Conventional War*, Brookings Institute, Washington, DC, 1985.
- [53] Erbe, L.H., and B.G. Zhang, Oscillation of discrete analogues of delay equations, *Differential Integral Equations* **2** (1989), 300–309.
- [54] Erdélyi, A., W. Magnus, F. Oberhettinger, and F.G. Tricomi, *Tables of Integral Transforms*, Vol. 2, McGraw-Hill, New York, 1954.
- [55] Evgrafov, M., The asymptotic behavior of solutions of difference equations, *Dokl. Akad. Nauk SSSR* **121** (1958), 26–29 (Russian).

- [56] Feigenbaum, M., Quantitative universality for a class of nonlinear transformations, *J. Statist. Phys.* **19** (1978), 25–52.
- [57] Gautschi, W., Computational aspects of three-term recurrence relations, *SIAM Rev.* **9** (1967), 24–82.
- [58] Gautschi, W., Minimal solutions of three-term recurrence relations and orthogonal polynomials, *Math. Comp.* **36** (1981), 547–554.
- [59] Goldberg, S., *Introduction to Difference Equations*, Dover, New York, 1986.
- [60] Grove, E.A., and G. Ladas, *Periodicities in Nonlinear Difference Equations*, Taylor & Francis, London, to appear.
- [61] Grove, E.A., C.M. Kent, G. Ladas, R. Levins, and S. Valicenti, Global stability in some population models, *Communications in Difference Equations* (Poznan, 1998), pp. 149–176, Gordon and Breach, Amsterdam, 2000.
- [62] Gulick, D., *Encounters with Chaos*, McGraw-Hill, New York, 1992.
- [63] Gyori, I., and G. Ladas, *Oscillation Theory of Delay Differential Equations with Applications*, Clarendon Press, Oxford, 1991.
- [64] Hartman, P., Difference equations: Disconjugacy, principal solutions, Green's functions, complete monotonicity, *Trans. Amer. Math. Soc.* **246** (1978), 1–30.
- [65] Hautus, M.L.J., and T.S. Bolis, Solution to problem E2721, *Amer. Math. Monthly* **86** (1979), 865–866.
- [66] Henrici, P., *Applied and Computational Complex Analysis*, Vol. 2, Wiley-Interscience, New York, 1977.
- [67] Hooker, J.W., and W.T. Patula, Riccati-type transformation for second-order linear difference equations, *J. Math. Anal. Appl.* **82** (1981), 451–462.
- [68] Horn, R.A., and C.R. Johnson, *Matrix Analysis*, Cambridge University Press, Cambridge, 1999.
- [69] Hurt, J., Some stability theorems for ordinary difference equations, *SIAM J. Numer. Anal.* **4** (1967), 582–596.
- [70] Iggidr, A., and M. Bensoubaya, New results on the stability of discrete-time systems and applications to control problems, *J. Math. Anal. Appl.* **219** (1998), 392–414.
- [71] Ismail, M.E.H., D.R. Masson, and E.B. Saff, A minimal solution approach to polynomial asymptotics, in *Orthogonal Polynomials and Their Applications*, (ed. C. Brezinski et al.), J.C. Bultzer AG, Scientific Publ. Co., IMACS, 1991, pp. 299–303.
- [72] Johnson, W.P., The curious history of Faá di Bruno's formula, *Amer. Math. Monthly*, **109**(3) (2002), 217–234.
- [73] Jones, W.B., and W.J. Thorn, *Continued Fractions, Analytic Theory and Applications*, Addison-Wesley, Reading, MA, 1980.
- [74] Jury, E., *Theory and Applications of the Z-transform*, Wiley, New York, 1964.
- [75] Kailath, T., *Linear Systems*, Prentice-Hall, Englewood Cliffs, NJ, 1980.
- [76] Kalman, D., The generalized Vandermonde matrix, *Math. Mag.* **57**(1) (1984), 15–21.
- [77] Kalman, R.E., and J.E. Bertram, Control system analysis and design via the second method of Liapunov: I. Continuous-time systems; II. Discrete-time systems, *Trans. ASME Ser. D. J. Basic Engrg.* **82** (1960), 371–393, 394–400.
- [78] Karakostas, G., H.G. Philos, and G.Y. Sficas, The dynamics of some discrete population models, *Nonlinear Anal.* **17** (1991), 1069–1084.

- [79] Kelley, W.G., and A.C. Peterson, *Difference Equations, An Introduction with Applications*, Academic Press, New York, 1991.
- [80] Kocic, V.L., and G. Ladas, *Global Behavior of Nonlinear Difference Equations of Higher Order with Applications*, Kluwer Academic, Dordrecht, 1993.
- [81] Kot, M., *Elements of Mathematical Ecology*, Cambridge University Press, Cambridge, 2001.
- [82] Kreuser, P., *Über das Verhalten der Integrale homogener linearer differenzgleichungen im Unendlichen*, Dissertation, University of Tübingen, Leipzig, 1914.
- [83] Kuang, Y., and J. Cushing, Global stability in a nonlinear difference-delay equation model of flour beetle population growth, *J. Difference Equ. Appl.* **2**(1) (1996), 31–37.
- [84] Kulenovic, M.R.S., and G. Ladas, *Dynamics of Second-Order Rational Difference Equations*, Chapman & Hall/CRC Press, Boca Raton, FL, 2002.
- [85] Kulenovic, M.R.S., and G. Ladas, *Dynamics of Second-Order Rational Difference Equations with Open Problems and Conjectures*, Chapman & Hall/CRC Press, Boca Raton, FL, 2003.
- [86] Kuruklis, S., The asymptotic stability of  $x_{n+1} - ax_n + bx_{n-k} = 0$ , *J. Math. Anal. Appl.* **188** (1994), 719–731.
- [87] Lakshmikantham, V., and D. Trigiante, *Theory of Difference Equations: Numerical Methods and Applications*, Academic Press, New York, 1988.
- [88] LaSalle, J.P., *The Stability and Control of Discrete Processes*, Applied Mathematical Sciences, Vol. 82, Springer-Verlag, New York, 1986.
- [89] Lauwerier, H., *Mathematical Models of Epidemics*, Math. Centrum, Amsterdam, 1981.
- [90] Levin, A., and R.M. May, A note on difference delay equations, *Theoret. Population Biol.* **9** (1976), 178–187.
- [91] Levinson, N., The asymptotic behavior of a system of linear differential equations, *Amer. J. Math.* **68** (1946), 1–6.
- [92] Li, T.Y., and J.A. Yorke, Period three implies chaos, *Amer. Math. Monthly* **82** (1975), 985–992.
- [93] Liapunov, A., Problème général de la stabilité du mouvement, *Ann. of Math., Study #17* (1947).
- [94] Ludyk, G., *Time-Variant Discrete-Time Systems*, Braunschweig, Wiesbaden: Vieweg, 1981.
- [95] Ludyk, G., *Stability of Time-Variant Discrete-Time Systems*, Braunschweig, Wiesbaden: Vieweg, 1985.
- [96] Luenberger, D.G., *Introduction to Dynamic Systems, Theory, Models and Applications*, Wiley, New York, 1979.
- [97] Mackey, M.C., and L. Glass, Oscillation and chaos in physiological control systems, *Science* **197** (1997), 287–289.
- [98] Magnus, W., Oberhettinger, F., and Soni, R.P., *Formulas and Theorems for Special Functions of Mathematical Physics*, Springer-Verlag, Berlin, 1996.
- [99] Meschkowski, H., *Differenzgleichungen*, Vandenhoeck and Ruprecht, Göttingen, 1959.
- [100] Mickens, R., *Difference Equations*, Van Nostrand Reinhold, New York, 1990.
- [101] Miller, K.S., *Linear Difference Equations*, Benjamin, New York, 1968.

- [102] Miller, R.K., and A.N. Michael, *Ordinary Differential Equations*, Academic Press, New York, 1982.
- [103] Milne-Thomson, L.M., *The Calculus of Finite Differences*, Macmillan, London, 1960.
- [104] Murray, J.D., *Asymptotic Analysis*, Clarendon Press, Oxford, 1974.
- [105] Neidinger, R.D., and R.J. Annen, *The road to chaos is filled with polynomial curves*, preprint.
- [106] Nevai, P.G., Orthogonal polynomials, *Mem. Amer. Math. Soc.* **213** (1979).
- [107] Nicholson, A.J., An outline of the dynamics of animal populations, *Austral. J. Zool.* **2** (1954), 9–65.
- [108] Ogata, K., *Discrete-Time Control Systems*, Prentice-Hall, Englewood Cliffs, NJ, 1987.
- [109] Olmsted, J.M.H., *Advanced Calculus*, Prentice-Hall, Englewood Cliffs, NJ, 1961.
- [110] Olver, F.W.J., *Asymptotics and Special Functions*, Academic Press, New York, 1974.
- [111] Ortega, J.M., *Matrix Theory, A Second Course*, Plenum, New York, 1987.
- [112] Patula, W.T., Growth and oscillation properties of second-order linear difference equations, *SIAM J. Math. Anal.* **19** (1979), 55–61.
- [113] Perron, O., *Die Lehre von den Kettenbrüchen*, Vol. II, Teubner Verlag, Stuttgart, 1957.
- [114] Perron, O., Über einen Satz des Herrn Poincaré, *J. Reine Angew. Math.* **136** (1909), 17–37.
- [115] Perron, O., Über lineare Differenzgleichungen, *Acta Math.* **34** (1911), 109–137.
- [116] Perron, O., Über Stabilität und Asymptotisches Verhalten der Integrale von Differential-Gleichungssystemen, *Math. Z.* **29** (1929), 129–160.
- [117] Perron, O., Über Summgleichungen und Poincarésche Differenzgleichungen, *Math. Ann.* **84** (1921), 1.
- [118] Petkovšek, M., H.S. Wilf, and D. Zeilberger, *A = B*, A.K. Peters, Wellesley, NY, 1996.
- [119] Pielou, E.C., *An Introduction to Mathematical Ecology*, Wiley Interscience, New York, 1969.
- [120] Pincherle, S. Delle, Funzioni ipergeometriche e de varie questioni ad esse attinenti, *Giorn. mat. Battaglini* **32** (1894), 209–291.
- [121] Pinto, M., Discrete dichotomies, *Comput. Math. Appl.* **28** (1994), 259–270.
- [122] Pituk, M., More on Poincaré's and Perron's Theorems for difference equations, *J. Difference Equ. Appl.* **8**(3) (2002), 201–216.
- [123] Poincaré, H., Sur les equations linéaires aux différentielles ordinaires et aux différences finies, *Amer. J. Math.* **7** (1885), 203–258.
- [124] Puu, T., *Nonlinear Economic Dynamics*, Lecture Notes in Economics and Mathematical Systems, Springer-Verlag, Berlin, 1989.
- [125] Puu, T., Chaos in business cycles, *Chaos Solitons Fractals* **1** (1991), 457–473.
- [126] Puu, T., and I. Sushko, A business cycle model with cubic nonlinearity, CERUM Working Paper 47, 2002.
- [127] Ribenboim, R., *The Book of Prime Number Records*, Springer-Verlag, New York, 1988.

- [128] Robinson, C., *Dynamical Systems*, 2nd ed., CRC Press, Boca Raton, FL, 1999.
- [129] Samuelson, P.A., Interactions between the multiplier analysis and the principle of acceleration, *Rev. Econom. Statist.* **21** (1939), 75–78; reprinted in *Readings in Business Cycle Theory*, Blakiston, Philadelphia, 1944.
- [130] Sandefur, J.T., *Discrete Dynamical Systems*, Clarendon Press, Oxford, 1990.
- [131] Schinas, J., Stability and conditional stability of time-difference equations in Banach spaces, *J. Inst. Math. Appl.* **14** (1974), 335–346.
- [132] Sedaghat, H., The impossibility of unstable globally attracting fixed points for continuous mappings of the line, *Amer. Math. Monthly* **104** (1997), 356–358.
- [133] Sedaghat, H., Nonlinear difference equations, in *Theory with Applications to Social Science Models*, Kluwer Academic, Dordrecht, 2003.
- [134] Shannon, C.E., and W. Weaver, *The Mathematical Theory of Communication*, University of Illinois, Urbana, 1949, pp. 7–8.
- [135] Sharkovsky, A.N., Yu.L. Maistrenko, and E.Yu. Romanenko, *Difference Equations and Their Applications*, Kluwer Academic, Dordrecht, 1993.
- [136] Smith, J.M., *Mathematical Ideas in Biology*, Cambridge University Press, Cambridge, 1968.
- [137] Smith, G.D., *Numerical Solution of Partial Differential Equations: Finite Difference Methods*, 3rd ed., Clarendon Press, Oxford, 1985.
- [138] Smith, H., Planar competitive and cooperative difference equations, *J. Difference Equ. Appl.* **3** (1998), 335–357.
- [139] Szegő, G., *Orthogonal Polynomials*, Amer. Math. Soc. Colloq. Publ., Vol. 23, Providence, RI, 1959.
- [140] Van Assche, W., *Asymptotics for Orthogonal Polynomials*, Lecture Notes in Mathematics, Vol. 1265, Springer-Verlag, Berlin, 1987.
- [141] Van Der Poorten, A., A proof that Euler missed, Apéry's proof of the irrationality of  $\zeta(3)$ , *Math. Intelligencer* **1** (1979), 195–203.
- [142] Weiss, L., Controllability, realization and stability of discrete-time systems, *SIAM J. Control* **10** (1972), 230–251.
- [143] Williams, J.L., *Stability Theory of Dynamical Systems*, Nelson, London, 1970.
- [144] Wimp, J., *Sequence Transformations*, Academic Press, New York, 1981.
- [145] Wimp, J., *Computation with Recurrence Relations*, Pitman Advanced Publ., Boston, MA, 1984.
- [146] Wimp, J., and D. Zeilberger, Resurrecting the asymptotics of linear recurrences, *J. Math. Anal. Appl.* **111** (1985), 162–176.
- [147] Wong, R., and H. Li, Asymptotic expansions for second-order linear difference equations, *J. Comput. Appl. Math.* **41** (1992), 65–94.
- [148] Wong, R., and H. Li, Asymptotic expansions for second-order difference equations, II, *Stud. Appl. Math.* **87** (1992), 289–324.

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