# Some Books Relevant to Computational Mathematics

## Numerical Differential Equations

1. Braess, D., *Finite Elements: Theory, Fast Solvers, and Applications in Solid Mechanics*, Cambridge University Press, 1997.

2. Briggs, W., *A Multigrid Tutorial*, SIAM, 1987.

3. Gear, C. W., *Numerical Initial Value Problems in Ordinary Differential Equations*, Prentice Hall, 1971.

4. Hairer, E., Nørsett, S. P., Wanner, G., *Solving Ordinary Differential Equations I: Nonstiff Problems* (2nd ed.), Springer-Verlag, Berlin, 1993.

5. Hairer, E., Wanner, G., *Solving Ordinary Differential Equations II: Stiff and Differential-algebraic Problems* (2nd ed.), Springer-Verlag, Berlin, 1996.

6. Lambert, J. D., *Numerical Methods for Ordinary Differential Systems. The Initial Value Problem*, John Wiley & Sons, Chichester, 1991.

7. LeVeque, R., *Numerical Methods for Conservation Laws*, Birkhäuser, 1992.

8. Shampine, L. F., *Numerical Solution of Ordinary Differential Equations*, Chapman and Hall, 1994.

9. Shampine, L. F., Gordon, M. K., *Computer Solution of Ordinary Differential Equations. The Initial Value Problem*, W. H. Freeman and Co., San Francisco, Calif., 1975.

## Other Numerical Analysis Books

1. Axelsson, O., *Iterative Solution Methods*, Cambridge Univ. Press, 1994.

2. de Boor, C., *A Practical Guide to Splines* (2nd ed.), Springer, 1984.

3. Björck, A., *Numerical Methods for Least Squares Problems*, SIAM, 1996.

4. Cheney, E. W., *Introduction to Approximation Theory*, Chelsea, 1982.

5. Cheney, W. and Light, W., *A Course in Approximation Theory*, Brooks/Cole, 2000.

6. Chui, C. K., *Multivariate Splines*, SIAM, 1988.

7. Conte, S. D. and de Boor, C., *Elementary Numerical Analysis* (3rd ed.), McGraw-Hill, 1980.

8. Davis, P., *Interpolation and Approximation*, Blaisdell, 1963 (reprinted by Dover).

9. Demmel, J. W., *Applied Numerical Linear Algebra*, SIAM, 1997.

10. Dierckx, P., *Curve and Surface Fitting with Splines*, Oxford Univ. Press, 1993.

11. Farin, G., *Curves and Surfaces for Computer Aided Geometric Design* (3rd ed.), Academic Press, 1993.

12. Golub, G. H. and Ortega, J. M., *Scientific Computing: An Introduction with Parallel Computing*, Academic Press, 1993.

13. Golub, G. H. and Van Loan, C. F., *Matrix Computations* (3rd ed.), Johns Hopkins Press, 1996.

14. Greenbaum, A., *Iterative Methods for Solving Linear Systems*, SIAM, 1997.

15. Hackbusch, W., *Iterative solution of Large Sparse Linear Systems of Equations*, Springer, 1994.

16. Hoschek, J. and Lasser, D., *Fundamentals of Computer Aided Geometric Design*, A K Peters, 1993.

17. Isaacson, E. and Keller, H. B., *Analysis of Numerical Methods*, John Wiley & Sons, 1966 (reprinted by Dover).

18. Kincaid, D. and Cheney, W., *Numerical Analysis. Mathematics of Scientific Computing*, (3rd ed.), Brooks/Cole, Pacific Grove, CA, 2001.

19. Lancaster, P. and Salkauskas, K., *Curve and Surface Fitting*, Academic Press, 1986.

20. Powell, M. J. D., *Approximation Theory and Methods*, Cambridge Univ. Press, 1981.

21. Schumaker, L. L., *Spline Functions*, Wiley-Interscience, 1981.

22. Stewart, G. W., *Introduction to Matrix Computations*, Academic Press, 1973.

23. Trefethen, L. N. and Bau, D., *Numerical Linear Algebra*, SIAM, 1997.

24. Van Loan, C. F., *Introduction to Scientific Computing* (2nd ed.), Prentice Hall, 2000.

25. Varga, R. S., *Matrix Iterative Analysis*, Prentice-Hall, 1962.

26. Watson, G. A., *Approximation Theory and Numerical Methods*, Wiley, 1980.

27. Young, D., *Iterative Solution of Large Linear Systems*, Academic Press, 1971.