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# BIBLIOGRAPHY

## KENDALL E ATKINSON

### I. BOOKS

1. K. Atkinson and Weimin Han. *Theoretical Numerical Analysis: A Functional Analysis Framework*, 3<sup>rd</sup> edition, Springer-Verlag, New York, 2009.
2. K. Atkinson, Weiman Han, and David Stewart. *The Numerical Solution of Ordinary Differential Equations*, John Wiley Pub., 2009.
3. K. Atkinson and Weimin Han. *Theoretical Numerical Analysis: A Functional Analysis Framework*, 2<sup>nd</sup> edition, Springer-Verlag, New York, 2005.
4. K. Atkinson and Weimin Han. *Elementary Numerical Analysis*, 3<sup>rd</sup> edition, John Wiley, New York, 2003. [There is a significant MATLAB software component to this edition.]
5. K. Atkinson and Weimin Han. *Theoretical Numerical Analysis: A Functional Analysis Framework*, Springer-Verlag, New York, 2001.
6. *The Numerical Solution of Integral Equations of the Second Kind*, Cambridge University Press, 1997, 552 pages. This is both an update and a significant extension of the book in [14] below.
7. Second edition of *Elementary Numerical Analysis*, John Wiley, New York, 1993. A Korean language edition appeared in 1995, and a Chinese language edition has also appeared.

8. David Chien and K. Atkinson. *Solutions Manual* (for the book in [7]), John Wiley & Sons, 1993. These are the complete worked solutions of all problems in the text, together with a discussion of the text material.
9. *An Introduction to Numerical Analysis*, 2nd edition, 1989, 693 pages. This was a very time-consuming rewrite of the earlier 1978 edition, given below in [12].
10. *Elementary Numerical Analysis*, John Wiley & Sons, 1984, 416 pages.
11. *Solutions Manual* (for the book in [10]), John Wiley & Sons, 1985, 238 pages. These are the complete worked solutions of all problems in the text, together with a discussion of the text material.
12. *An Introduction to Numerical Analysis*, John Wiley, New York, 1978, 587 pages.
13. *Solutions Manual* (for book in [12]), John Wiley, New York, 1978. This is a general instructors guide of 217 pages, giving much more information than the usual solutions manual, including complete worked solutions to all problems.
14. *A Survey of Numerical Methods for the Solution of Fredholm Integral Equations of the Second Kind*, SIAM, Philadelphia, 1976.

## II. PAPERS

[In general, all papers given below have been refereed. Those in journals have been peer-refereed in the standard manner. Those in conference proceedings were refereed in various ways, dependent on the organizers' way of organizing the review process.]

1. K. Atkinson, and O. Hansen. A Spectral Method for the Eigenvalue Problem for Elliptic Equations, submitted for publication. Also see [http://arxiv.org/PS\\_cache/arxiv/pdf/0909/0909.3607v1.pdf](http://arxiv.org/PS_cache/arxiv/pdf/0909/0909.3607v1.pdf).
2. K. Atkinson, David Chien, and O. Hansen. A Spectral Method for Elliptic Equations: The Neumann Problem, submitted for publication. Also see [http://arxiv.org/PS\\_cache/arxiv/pdf/0907/0907.1270v1.pdf](http://arxiv.org/PS_cache/arxiv/pdf/0907/0907.1270v1.pdf).

3. K. Atkinson, David Chien, and O. Hansen. A Spectral Method for Elliptic Equations: The Dirichlet Problem, *Advances in Computational Mathematics*, DOI=10.1007/s10444-009-9125-8, to appear.
4. K. Atkinson and L. Shampine. Algorithm 876: Solving Fredholm integral equations of the second kind in MATLAB, *ACM Trans. Math. Software*, **34** (2008), article #21 (20 pages), DOI=10.1145/1377596.1377601. See the accompanying software package at  

<http://www.math.uiowa.edu/ftp/atkinson/Fie.package/>

and on the website of The MathWorks, Inc.
5. O. Hansen, K. Atkinson, and David Chien. On the norm of the hyperinterpolation operator on the unit disk, *IMA J. Numerical Analysis*, **29** (2009), pp.257-283, DOI=10.1093/imanum/drm052.
6. K. Atkinson and David Chien. A study of the fast solution of the occluded radiosity equation, *Electronic Transactions on Numerical Analysis*, **23** (2006), pp. 219-250.
7. K. Atkinson and O. Hansen. Solving the nonlinear Poisson equation on the unit disk, *Journal of Integral Equations & Applications*, **17** (2005), pp. 223-241.
8. K. Atkinson and A. Sommariva. Quadrature over the sphere; *Electronic Transactions on Numerical Analysis*, **20** (2005), pp. 104-118.
9. J. Seol and K. Atkinson. Numerical evaluation of collocation integrals for the radiosity equation, *Applied Numerical Analysis and Computational Mathematics* **2** (2005), pp. 306-325.
10. K. Atkinson and A. Sommariva. On the numerical solution of some semilinear elliptic problems, *Computing: Archives for Scientific Computing* **74** (2005), pp. 159-175.
11. K. Atkinson and Weimin Han. On the numerical solution of some semilinear elliptic problems, *Electronic Transactions on Numerical Analysis* **17** (2004), pp. 206-217.
12. Quadrature of singular integrands over surfaces, *Electronic Transactions on Numerical Analysis* **17** (2004), pp.133-150.

13. Hongling Wang, Joseph Kearney, Kendall Atkinson, Arc-length parameterized spline curves for real-time simulation, *Proceedings of the 5th International Conference on Curves and Surfaces*, Saint-Malo, France, June 2002, pp. 387-396.
14. Hongling Wang, Joseph Kearney, Kendall Atkinson, Robust and efficient computation of the closest point on a spline curve, *Proceedings of the 5th International Conference on Curves and Surfaces*, Saint-Malo, France, June 2002, pp. 397-406.
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16. K. Atkinson and David Chien. A fast matrix-vector multiplication method for solving the radiosity equation, *Advances in Computational Mathematics*, **12** (2000), pp. 151-174.
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19. K. Atkinson and Graeme Chandler. The collocation method for solving the radiosity equation for unoccluded surfaces, *Journal of Integral Eqns & Applics* **10** (1998), pp. 253-290.
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21. Ian Sloan and K. Atkinson. Semi-discrete Galerkin approximations for the single-layer equation on Lipschitz curves, *Journal of Integral Eqns & Applics* **9** (1997), pp. 279-292.
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### III. NON-RESEARCH ARTICLES

1. A Personal Perspective on the History of the Numerical Analysis of Fredholm Integral Equations of the Second Kind, in proceedings of *The Birth of Numerical Analysis*, Leuven, Belgium, 29-30 October 2007, to appear. For a group picture from the conference, see

[http://www.math.uiowa.edu/~atkinson/talks/BirthNA\\_group.pdf](http://www.math.uiowa.edu/~atkinson/talks/BirthNA_group.pdf)

2. Numerical Analysis, in *Scholarpedia*,

[http://www.scholarpedia.org/article/Numerical\\_Analysis](http://www.scholarpedia.org/article/Numerical_Analysis)

3. Numerical Analysis, in *Encyclopedia Britannica Online* (2005), (manuscript 8 pages in length).
4. Recommended resources in numerical analysis, in *Using the Mathematics Literature*, edited by Kristine Fowler, Marcel Dekker, Inc, 2004, pp. 273-299.
5. Numerical Analysis, in *Encyclopedia of Statistical Sciences*, Volume 6, ed. by Kotz and N. Johnson, John Wiley & Sons, New York, 1985, 384-388.

### IV. TECHNICAL REPORTS

1. K. Atkinson, 'Modelling a road using spline interpolation', *Reports on Computational Maths #145*, Dept of Math, Univ of Iowa. This is a background paper for two conference papers written with Joe Kearney and Hongling Wang of the Computer Science Dept., given above in #13 and #14 under **PAPERS**. For an easy-to-use MATLAB package, go to <http://www.math.uiowa.edu/ftp/atkinson/roads-files/>.
2. *User's Guide for a Boundary Element Program*. This accompanies a large boundary element code (written in *Fortran*) which implements many of my ideas from research of the past 30 years on the numerical solution of boundary integral equations in three dimensions. The code

and guide is available from the Math Dept anonymous ftp web site or from the author's personal web site, at.

<http://www.math.uiowa.edu/~atkinson/bie.html>

The first version was released in 1993, and a significant extension was released in early 1998, including a new *User's Guide*. The programs and guide, including Version #2, are available at the above URL. The revised user's guide is also available as *Reports on Computational Mathematics* #103 (1998).

3. Yan Chen and K. Atkinson, Solving a single layer integral equation on surfaces in  $\mathbb{R}^3$ , *Reports on Computational Maths* #51, Dept of Math, Univ of Iowa. Some of the material in this report has been presented in the book #6 given above.
4. An empirical study of the numerical solution of integral equations on surfaces in  $\mathbb{R}^3$ , *Reports on Computational Mathematics* #1 (1989), Dept of Mathematics, Univ. of Iowa, 49 pages.
5. SPHERE.TRI.PACK: A Spherical Triangulation Package. This Fortran package provides for the creation, refinement, and manipulation of triangulations on the unit sphere, with the triangulations based on inscribed regular polyhedra with triangular faces.

## V. IN PREPARATION

1. K. Atkinson. I am preparing a boundary integral equation package, in MATLAB, for solving planar problems for Laplace's equation.
2. K. Atkinson. Numerical approximation of particular solutions to the Poisson equation in two and three dimensions.
3. K. Atkinson, D. Chien, and O. Hansen. Creating mappings from the unit ball onto the interior of a given boundary.