A Fourier series approach to Burgers' equation

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174. Caldwell,J., "The effect of axial shields on the field produced by superconducting magnets", submitted for publication in IEEE Transactions on Magnetics, 2009.
175. Caldwell,J., "Use of image methods to determine the effects of iron of constant permeability on the fields of axisymmetric conductors", submitted for publication in J.Appl. Phys. A , 2009.
176. Caldwell,J. and Savovic,S., "Solution of Stefan problems with time dependent boundary conditions", submitted to Int. J. Heat Mass Transfer, 2010.
177. Caldwell,J., "Application of the heat balance integral method to inverse Stefan problems", submitted to Int. J. Thermal Sciences, 2010.
178. Caldwell,J. "Spectral and difference solutions to non-linear equations of the Burgers' type", submitted to SIAM J. of Applied Mathematics, 2010.

B. TEXTBOOKS AND THESES – J.CALDWELL

1. Caldwell,J., "The X- and Y- Functions of Chandrasekhar", M.Sc. Thesis, Queen's University of Belfast, 1966.
2. Caldwell,J. "Magnetostatic Field Calculations", Ph.D. Thesis, Teesside Polytechnic, 1974.
3. Caldwell,J., "Computational and Quantitative Methods", EMJOC PRESS (Northallerton, UK), 1st ed. (paperback, ISBN 0-9506994-2-X), 1981. [134 pages]
4. Caldwell,J., "Computational and Quantitative Methods", EMJOC PRESS (Northallerton, UK), 2nd ed. (hardback, ISBN 0-950664-1-1), 1981. [134 pages]
5. Caldwell,J. and Moscardini,A.O. (Editors), "Numerical Modelling in Diffusion Convection", PENTECH PRESS (London:Plymouth) ISBN 7273-1404-1, 1982. [262 pages]
6. Caldwell,J. and Bradley, R. (Editors), "Industrial Electromagnetics Modelling", MARTINUS NIJHOFF PUBLISHERS (The Hague/Boston/Lancaster), ISBN 90-247-2889-4, 1983. [234 pages]
7. Caldwell,J, and Bradley, R. (Editors), "Industrial Vibration Modelling", MARTINUS NIJHOFF PUBLISHERS (The Hague/Boston/Lancaster), ISBN 90-247-3423-1, 1987. [251 pages]
8. Caldwell,J., "Mathematical Solution of Physical Problems Particularly Involving Magnetostatic Fields", D.Sc. Thesis, Queen's University of Belfast, 1985.
9. Caldwell,J. and Ram, Y.M., "Mathematical Modelling : Concepts and Case Studies", KLUWER ACADEMIC PUBLISHERS (Dordrecht/Boston/London), ISBN 0-7923-5820-1, 1999.
10. Caldwell,J. and Ng, K.S., "Mathematical Modelling: Case Studies and Projects", KLUWER ACADEMIC PUBLISHERS (Dordrecht/Boston/The Hague), ISBN 1-4020-1991-2, 2004. [252 pages]
11. Caldwell,J. and Ng,K.S. "Mathematical Modelling: Case Studies and Projects", [now EBOOK on World Wide Web, i.e. electronic resource, SPRINGER, New York, NY], 2005.
12. Caldwell,J., "Mathematical and Numerical Solution (Including Modelling) of Physical Problems with the Emphasis on Partial Differential Equations Arising in the Areas of Heat Transfer, Magnetic Fields, Fluid Dynamics, Vibrations and Stresses", D.Sc. Thesis, Teesside University, 2007.
13. Caldwell,J., "Calculus and Linear Algebra", in preparation with Pearson Addison-Wesley.
14. Caldwell,J., Wong S.M. and Ng, K.S., "Quantitative Models for Financial Risk", in preparation with Cambridge University Press.

C. LIST OF CONFERENCE PRESENTATIONS – J. CALDWELL

1. "Some design aspects of a large superconducting magnet", 2nd Int. Conference on Magnet Technology, Oxford, UK, May 1967.
2. "Superconductivity and its engineering applications", Mathematics Colloquium, University of Central Queensland (UCQ), Rockhampton, Australia, April 1978.
3. "Solution of potential problems using integral equations", Numerical Analysis Colloquium, University of Manchester, June 1980.
4. "Conference Introduction as Chairman---Diffusion Convection Problems", POLYMODEL 4 Conference, Sunderland Polytechnic, 20-21 May 1981.
5. "Solution of the Dirichlet problem using the reduction to Fredholm integral equations", 3rd Int. Seminar on Recent Advances in Boundary Element Methods, University of California (Irvine), California, USA, 7-9 July 1981.
6. "Magnetostatic field calculations associated with superconducting coils in the presence of magnetic material", 3rd COMPUMAG Conference on the Computation of Electromagnetic Fields, Chicago, USA, 14-17 September 1981.
7. "Numerical approaches to Burgers' equation ", presentation at IMA Conference on Numerical Methods, University of Reading, March 1982.
8. "Magnetostatic field calculations associated with thick solenoids with iron present", POLYMODEL 6 Conference in Industrial Electromagnetics Modelling, Newcastle-upon-Tyne, 25-27 May 1983.
9. "Optimization of the magnetic screening of electromagnetic coils", POLYMODEL 6 Conference in Industrial Electromagnetics Modelling, Newcastle -upon-Tyne, Uk, 25-27 May 1983.
10. "Use of quadrature and extrapolation in the solution of potential problems", presentation at 9th Int. Congress of Mathematicians, Warsaw, Poland, 15-25 August 1983.
11. "Numerical approaches to Burgers' equation", 2nd Int. Conference on Numerical Methods for Nonlinear Problems, Barcelona, Spain, 9-14 April 1984.
12. "Application of integral equations to the solution of Dirichlet type problems", invited lecture at 3rd Int. Symposium on Integral Equations and their Applications, Warsaw, Poland, 3-6 December 1984.
13. "Computational Galerkin formulation for Burgers' equation", presentation at POLYMODEL 8 Conference on Industrial Fluid Flow Computation, Teesside Polytechnic, UK, 22-23 May 1985.

14. "Use of image methods to determine the effects of iron on the fields of axisymmetric conductors", presentation at 5th COMPUMAG Conference , Fort Collins, Colorado, USA, 3-6 June 1985.
15. "Comparison of current and pole models for calculations involving magnetized bodies", presentation at IASTED Conference on Modelling and Simulation, Lugano, Switzerland, June 1985.
16. "Numerical solution of a non-linear wave equation", presentation at POLYMODEL 9 Conference on Industrial Vibration Modelling, Newcastle-upon-Tyne, UK, 21-22 May 1986.
17. "Variational iterative schemes", 10th Int. Congress of Mathematicians, UC(Berkeley), USA, 3-10 August 1986.
18. "Application of cubic splines to the non-linear Burgers' equation", 3rd Int. Conference on Numerical Methods for Non-Linear Problems, Dubrovnik, Yugoslovakia, 15-18 September 1986.
19. "Numerical solution of one-dimensional melting/solidification model problems", 5th Int. Conference on Numerical Methods of Thermal Problems, Montreal, Canada, 29 June-3 July 1987.
20. "Use of variational-iterative methods for non-linear PDEs", British Theoretical Mechanics Colloquium, University of Exeter, UK, April 1989.
21. "Variational-iterative schemes as applied to the non-linear Burgers' equation", Asian Mathematics Conference, Hong Kong, 14-18 August 1990.
22. "Solution of Burgers' equation by Fourier transform methods", IMA Conference on Wavelets, Fractals and Fourier Transforms, University of Cambridge, UK, 16-18 December 1990.
23. "A range of numerical approaches to the non-linear Burgers' equation", 14th Biennial Conference on Numerical Analysis, University of Dundee, UK, 25-28 June 1991.
24. "Elastic analysis of a square plate with circular holes subjected to uniform pressure", Asian Pacific Conference on Computational Mechanics, Hong Kong, 11-13 December 1991.
25. "Numerical approaches to moving boundary problems", Int. Conference on Computational Engineering Science, Hong Kong, 17-22 December 1992.
26. "Numerical approaches to melting/solidification problems", 2nd Int. Conference on Computational Modelling of Free and Moving Boundary Problems, Milan, Italy, 23-25 June 1993.
27. "The heat balance integral method for cylindrical and spherical problems", 15th Biennial Conference on Numerical Analysis, University of Dundee, UK, 29 June-2 July 1993.
28. "Elastic analysis of a square plate with circular holes subjected to uniform pressure", 8th Int. Conference on Boundary Element Technology, Faro, Portugal, 9-11 November 1993.

29. "Use of cubic splines in the numerical solution of a model non-linear PDE", Conference on Scientific Computation, Hong Kong, 17-19 March 1994.
30. "Integral equation solution of potential problems", Int. Conference on Computational Methods and Function Theory ($, Penang, Malaysia, 21-25 March 1994.
31. "Numerical solution to two-phase Stefan problems by the Heat Balance Integral Method (HBIM)", Heat Transfer 94 Conference, Southampton, UK. 22-24 August 1994.
32. "Numerical solution of Stefan problems", 16th Biennial Conference on Numerical Analysis, University of Dundee, UK, 27-29 June 1995.
33. "Mathematical modelling of the stress distribution in high field magnet coils", Int. Conference of Industrial and Applied Mathematics ICIAM-95, Hamburg, Germany, 3-7 July 1995.
34. "Solution of two-phase Stefan problems by the Heat Balance Integral Method (HBIM)", IMA Conference (Mathematics of Heat Transfer), University of Bradford, UK, 29 June-1 July 1998.
35. "A Split-Step Finite Element Analysis (SSFEA) technique for solving non-linear PDEs", 1st Pacific Rim Conference on Mathematics, Hong Kong, 19-23 January 1998.
36. "An adaptive grid technique for solving non-linear KdV equation", Int. Workshop on Scientific Computing and Applications, Hong Kong, 7-10 December 1998.
37. "Numerical solution of two-phase Stefan problems", 18th Biennial Conference on Numerical Analysis, University of Dundee, UK, 29 June-2 July 1999.
38. "Spherical solidification by the Enthalpy method and the Heat Balance Integral Method (HBIM)", Int. Conference of Industrial and Applied Mathematics ICIAM 99, University of Edinburgh, UK, 5-9 July 1999.
39. "Numerical solution of Stefan problems", 6th Int. Conference on Advanced Computational Methods in Heat Transfer, Madrid, Spain, 3-6 July 2000.
40. "Numerical solution of Stefan problems in cylinders and annuli", 19th Biennial Conference on Numerical Analysis, University of Dundee, UK, 30 June-4 July 2001.
41. "Numerical solidification by the Enthalpy method and Heat Balance Integral Method (HBIM)", 7th Int. Conference on Advanced Computational Methods in Heat Transfer, Halkidiki, Greece, 22-25 April 2002.
42. "Finite difference solution of one-dimensional Stefan problem with periodic boundary conditions", 5th General Conference of the Balkan Physical Union BPU-5, Vrnjacka, Serbia and Montenegro, 25-29 August 2003.

NOTE: Over recent years I have been attending a number of conferences in the areas of Mathematics, Numerical Methods, Computational Methods and Mathematical Modelling organized by the various universities in Hong Kong.

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