

Dr. Yau Shu Wong

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Education

- D. Phil. in Mathematics, Oxford University, England, 1978.
- M. Sc. in Mathematics, Oxford University, England, 1976.
- B. Sc. in Electrical Engineering, University of Southampton, England, 1975.

Professional Experience

- 2010 - 2013: Director of Applied Mathematics Institute, University of Alberta, Edmonton, Alberta, Canada.
- 2001 - 2006: Associate Chair (Graduate Studies), Department of Mathematical and Statistical Sciences, University of Alberta, Edmonton, Alberta, Canada.
- 1984 - present: Professor, Department of Mathematical and Statistical Sciences, University of Alberta, Edmonton, Alberta, Canada.
- 1984 - 1994: NSERC (Natural Sciences and Engineering Research Council of Canada) University Research Fellow, Department of Mathematical Sciences, University of Alberta, Edmonton, Alberta, Canada.
- 1982 - 1984: Visiting Assistant Professor, Department of Mathematics and Statistics, McGill University, Quebec, Canada.
- 1980 - 1982: Staff Scientist, Institute for Computer Applications in Sciences and Engineering (ICASE), NASA Langley Research Center, Hampton, Virginia, USA.
- 1978 - 1980: Postdoctoral Research Fellow, Department of Computer Science and the Institute of Applied Mathematics and Statistics, University of British Columbia, Vancouver, BC, Canada.

Research Interests

- Applied Mathematics
- Numerical Analysis & Scientific Computing
- Solving Practical Problems in Sciences and Engineering
- Computational Aerodynamics and Aeroelasticity
- Nonlinear Dynamical Systems
- Data Mining Techniques

Consulting Activities

- ICASE (Institute for Computer Applications in Sciences and Engineering), NASA Langley Research Center, USA, (1983).
- The De Havilland Aircraft of Canada, (1984).
- ICOMP (Institute for Computational Mechanics in Propulsion), NASA Lewis Research Center, USA, (1987-90).
- Alberta Research Council and Myrias Research Corporation, (1990).
- Department of National Defence of Canada, (1987-90).
- National Research Council of Canada, (1989-92, 1995-97).
- Trans Computing Inc., (1995).
- Bombardier - Canadair Inc., (1996-97).
- External examiner, Department of Mathematics, The City University, Hong Kong, (2000-03).
- External examiner, Department of Mathematics, The Chinese University, Hong Kong, (2005-08).
- External Academic Advisor, Department of Mathematics, The City University of Hong Kong, (2007-2011).
- Co-Executive Editor, International Journal of Numerical Analysis - Series B (Since 2010)

Selected Publications (since 2010)

ADI-FDTD Method for Two-dimensional Transient Electromagnetic Problems, W. Li, Y. Zhang, Y.S. Wong and D. Liang, *Communication in Computational Physics*, 2015, In Press.

Numerical Inversion Schemes for Magnetization Using Aeromagnetic Data, Y. Zhang, Y.S. Wong, J. Deng, S. Lei and J. Lambert, *International Journal of Numerical Analysis and Modeling*, 2015, In Press.

Efficient and Accurate Numerical Solutions for Helmholtz Equation in Polar and Spherical Coordinates, K. Wang, Y.S. Wong and J. Deng, *Communications in Computational Physics*, 779-807, 2015

MULTISCALE FEM-FVM HYBRID METHOD FOR CONVECTION-DIFFUSION EQUATIONS WITH PERIODIC DISCONTINUOUS COEFFICIENTS IN GENERAL CONVEX DOMAINS, L.SHEN, L. CAO and Y.S. WONG, *International Journal of Numerical Analysis & Modeling - Series B*, 374-399, 2014

Multiscale Approach for Stochastic Elliptic Equations in Heterogeneous Media, X. Wang, L. Cao and Y.S. Wong, *APPLIED NUMERICAL MATHEMATICS*, 54-76, 2014.

High-Order Symplectic Schemes for Stochastic Hamiltonian Systems, J. Deng, C. Anton and Y.S. Wong, *Communications in Computational Physics*, 169-200, 2014

WEAK SYMPLECTIC SCHEMES FOR STOCHASTIC HAMILTONIAN EQUATIONS, C. Anton, J. Deng and Y.S. Wong, *ELECTRONIC TRANSACTIONS ON NUMERICAL ANALYSIS*, 1-20, 2014

POLLUTION-FREE FINITE DIFFERENCE SCHEMES FOR NON-HOMOGENEOUS HELMHOLTZ EQUATION, K. Wang and Y.S. Wong, *International Journal of Numerical Analysis and Modeling*, 787-815, 2014

SYMPLECTIC SCHEMES FOR STOCHASTIC HAMILTONIAN SYSTEMS PRESERVING HAMILTONIAN FUNCTIONS, C. Anton, Y.S. Wong and J. Deng, *International Journal of Numerical Analysis & Modeling*, 427-451, 2014

Error correction method for Navier–Stokes equations at high Reynolds numbers, K. Wang and Y.S. Wong, *JOURNAL OF COMPUTATIONAL PHYSICS*. 245-265, 2013

ON GLOBAL ERROR OF SYMPLECTIC SCHEMES FOR STOCHASTIC HAMILTONIAN SYSTEMS, C. Anton, Y.S. Wong and J. Deng, *International Journal of Numerical Analysis & Modeling Series*, 80-93, 2013

MULTISCALE ANALYSIS AND COMPUTATION FOR PARABOLIC EQUATIONS WITH RAPIDLY OSCILLATING COEFFICIENTS IN GENERAL DOMAINS, L. Cao, F. Zhai and Y.S. Wong, *International Journal of Numerical Analysis & Modeling*, 50-79, 2013

Hopf bifurcation analysis of an aeroelastic model using stochastic normal form, J. Deng, C. Anton and Y.S. Wong, JOURNAL OF SOUND AND VIBRATION, 3866-3886, 2012

EXACT FINITE DIFFERENCE SCHEMES FOR SOLVING HELMHOLTZ EQUATION AT ANY WAVENUMBER, Y.S. WONG and G. LI, International Journal of Numerical Analysis & Modeling - Series B, 91-108, 2011

Uncertainty investigations in nonlinear aeroelastic systems, J. Deng, C. Anton and Y.S. Wong, Journal of Computational and Applied Mathematics, 2006-3023, 2011

Stochastic collocation method for secondary bifurcation of a nonlinear aeroelastic system, J. Deng, C. Anton and Y.S. Wong, Journal of Sound and Vibration, 3006-3023, 2011

MULTISCALE COMPUTATIONS FOR 3D TIME-DEPENDENT MAXWELL'S EQUATIONS IN COMPOSITE MATERIALS, Y. Zhang, L. Cao and Y.S. Wong, SIAM Journal of Scientific Computing, 2560-2583, 2010

EFFICIENT PARALLEL HYBRID COMPUTATIONS FOR THREE-DIMENSIONAL WAVE EQUATION PRESTACK DEPTH IMAGING, W. Zhang and Y.S. Wong, International Journal of Numerical Analysis & Modeling, 373-391, 2010