

M. W. Wong

Degrees

B.Sc. (Hon) Mathematics, Sir George Williams University, Montreal, 1974

M.Sc. Mathematics, University of Toronto, 1975

Ph.D. Mathematics, University of Toronto, 1978

Doctor Honoris Causa, University Politehnica of Bucharest, 2013

Appointments

Research Associate, University of Alberta, 1978–79

Visiting Assistant Professor, University of Alberta, 1979–81

Assistant Professor, University of Lethbridge, 1981–82

Sessional Assistant Professor, York University, 1982–84

Assistant Professor, York University, 1984–86

Associate Professor, York University, 1986–91

Graduate Program Director, York University, 1991–94

Professor, York University, 1992–

Undergraduate Program Director, York University, 2002–06

Director of Pure Mathematics Section, York University, 2002–06

Chair, Department of Mathematics and Statistics, York University, 2006–2012

Visiting Appointments

Visiting Associate Professor, University of California at Irvine, 1987–88

Visiting Professor, University of California at Irvine, January 1–March 31, 1995

Research Visitor and Reviewer, Osaka University, January 16–29, 1997

Visiting Professor, University of Delaware, February 1–May 31, 1997

Visiting Professor, Concordia University, September 1– December 31, 2001

Visiting Professor, Iowa State University, January 1–May 15, 2002

Honors and Awards

Mappin Medal, Faculty of Science, Sir George Williams University, 1974

Mathematics Medal, Sir George Williams University, 1974

National Research Council of Canada Postgraduate Scholarship, 1974–78

Faculty of Arts Dean's Award for Outstanding Teaching, 1989–90 and 1995–96

The Honorary Diploma of the Romanian Mathematical Society for Excellence in Mathematical Research and Teaching, 2013

Research Funding

1. National Sciences and Engineering Research Council of Canada (NSERC) 1983–

2. Mathematics of Information Technology and Complex Systems (MITACS) 2005–06

A Selection of Recent Invited Lectures

1997 A series of five 90-minute lectures entitled “Wigner transforms and Weyl operators” was given at Osaka University in January 1997.

1999 A series of three 2-hour lectures entitled “Localization operators” was given at Seoul National University in June 1999.

1999 A series of two 2-hour lectures entitled “Localization operators” was given at Peking University in July 1999.

1999 A plenary lecture entitled “Weyl transforms, pseudo-differential operators and localization operators” was given at the Second Congress of the International Society for Analysis, its Applications and Computation (ISAAC) at Fukuoka Institute of Technology, Japan, in August 1999.

2000 A 2-hour lecture entitled “Gaussian series and Daubechies operators” and another 2-hour lecture entitled “Trace class norm inequalities for localization operators” were given at Peking University in July 2000.

2000 A plenary lecture entitled “Localization operators on the Weyl-Heisenberg group” was given at the International Conference on Geometry, Analysis and Applications (in memory of Late Professor V. K. Patodi) at Banaras Hindu University, India, in August 2000.

2002 A plenary lecture entitled “A new look at pseudo-differential operators” was given at the International Conference on Wavelets and Applications at Anna University in Chennai, India, in January 2002

2002 A plenary lecture entitled “A new look at pseudo-differential operators” and another plenary lecture entitled “Localization operators, Wigner transforms and paraproducts” was given at the Workshop on Time-Frequency Analysis and Related Topics at Università di Torino in June 2002.

2002 A series of three 2-hour lectures entitled “Pseudo-differential operators on topological groups” was given at Università di Torino in June 2002.

2002 A plenary lecture entitled “The Hermite semigroup” was given at the ISAAC Conference on Complex Analysis, Differential Equations and Related Topics at the Armenia Academy of Science in Yerevan, Armenia, in September 2002.

2002 A plenary lecture entitled “Localization operators, Wigner transforms and paraproducts” was given at the NATO-Armenia Workshop “Topics in Analysis and its Applications” in September 2002.

2003 A course consisting of four 1-hour lectures entitled “Localization operators on $SL(2, \mathbb{R})$ ” was given at the Bimestre Intensivo INDAM sponsored by Università di Torino and Politecnico di Torino in June 2003.

2003 A plenary lecture entitled “ M -elliptic pseudo-differential operators on $L^p(\mathbb{R}^n)$ ” was given at the International Workshop on Quantization and Numerical Harmonic Analysis at Politecnico di Torino in June 2003.

2003 A plenary lecture entitled “Trace class Weyl transforms” was given at the Fourteenth International Workshop on Operator Theory and Applications (IWOTA) at Università di Cagliari, Italy, in June 2003.

2004 A plenary lecture entitled “The heat equation for the Hermite operator on the Heisenberg group” was given at the International Conference on Pseudo-Differential Operators and Related Topics at Växjö University, Sweden, in June 2004.

2004 An invited lecture entitled “Weyl transforms and a degenerate PDE” was given at the International Conference on Degenerate PDE and Singular Geometries at Universität Potsdam, Germany, in August 2004.

2004 A plenary lecture entitled “From Weyl transforms to heat kernels on compact Lie groups” was given at GF2004: Topics in PDE, Harmonic Analysis and Mathematical Physics at the University of Novi Sad, Serbia & Montenegro, in September 2004.

2005 An invited lecture entitled “Weyl transforms, the heat kernel and Green function of a degenerate elliptic operator” was given at the London Analysis Seminar at Imperial College London, England, in February 2005.

2005 An invited lecture entitled “Weyl transforms, the heat kernel and Green function of a degenerate elliptic operator” was given at Vishik’s PDE Seminar at Moscow State University in February 2005.

2006 An opening lecture entitled “A brief history on forty years of pseudo-differential operators” was given at the Centro Internazionale Matematico Estivo (CIME) Courses “Pseudo-Differential Operators, Quantization and Signals” in Cetraro, Italy, in June 2006.

2006 An invited lecture entitled “Some spectral results on the twisted Laplacian” was given at the International Conference on Partial Differential Equations on Noncompact and Singular Manifolds at Universität Potsdam, Germany, in August, 2006.

2007 A plenary talk entitled “Fourier–Wigner transforms and Liouville’s theorems for the sub-Laplacian on the Heisenberg group” was given at the International Conference on Linear and Nonlinear Theory of Generalized Functions and Its Applications at the Stefan Banach International Mathematical Center of the Polish Academy of Sciences in Bedlewo, Poland, in September 2007.

2008 An invited talk entitled “Fourier–Wigner transforms and Liouville’s theorems for the sub-Laplacian on the Heisenberg group” was given at the Workshop and School on Partial Differential Equations and Analysis on Singular Spaces, sponsored by the Hausdorff Institute of Mathematics and held at Max-Planck-Institut für Mathematik in Bonn, Germany, in February 2008.

2008 An invited lecture entitled “Liouville’s theorems for the Heisenberg group” was given at the London Analysis Seminar at University College London, England, in June 2008.

2009 A plenary lecture entitled “Absolutely referenced phase information and spectra of modified Stockwell transforms” was given at the XII International Workshop on Wavelets, Differential Equations and Number Theory held at the University of Havana in Cuba in February 2009.

2009 A distinguished lecture entitled “Phases of modified Stockwell transforms and instantaneous frequencies” was given at the Special Session on Pseudo-Differential Operators at the Seventh ISAAC Congress held at Imperial College London in July 2009.

2009 A plenary lecture entitled “Inverses, heat semigroups, adaptive Sobolev spaces and Liouville theorems for degenerate elliptic equations” was given at the International Con-

ference on Generalized Functions held at the University of Vienna in August-September 2009.

2009 An invited lecture entitled “Spectral invariance and essential equivalence of SG pseudo-differential operators with exit at infinity” was given at the International Conference on Microlocal Analysis and Spectral Theory on Singular Spaces held at Penn State Altoona in October 2009.

2010 A minicourse of 3 lectures entitled “The sub-Laplacian on the Heisenberg group” was given at “3 Weeks in Microlocal Analysis” at Università di Torino, Italy, in May 2010.

2011 An invited lecture entitled “Laplacians related to the Heisenberg group” was given at the Workshop on Geometric and Singular Analysis held at Universität Potsdam in March 2011.

2012 A plenary lecture entitled “Spectral Theory and Number Theory of the Twisted Bi-Laplacian” was given at the International Conference on Fourier Analysis and Pseudo-Differential Operators” held at Aalto University in Helsinki, Finland in June 2012.

2012 A plenary lecture entitled “The Heat Kernel and Green Function of the Twisted Bi-Laplacian” was given at the International Conference on Topics in PDE, Microlocal and Time-Frequency Analysis held at the University of Novi Sad in Serbia in September 2012.

2012 A series of three lectures entitled “Analysis, Geometry and Arithmetics on the Heisenberg Group” was given in the Department of Mathematics at the Beijing Institute of Technology in October 2012.

2012 An invited lecture entitled “Spectral Theory and Number Theory of the Twisted Bi-Laplacian” was given in the Department of Mathematics at Peking University in November 2012.

2013 An invited lectute entitled “Hilbert–Schmidt and Trace Class Pseudo-Differential Operators on the Heisenberg Group” was given at the Simion Stoilow Institute of Mathematics of the Romanian Academy in March 2013.

2013 An invited lecture entitled “Phases of Modified Stockwell Transforms and Instantaneous Frequencies” was presented in the Department of Mathematics at the University Politehnica of Bucharest in March 2013.

2013 An invited lecture entitled “Pseudo-Differential Operators on the Heisenberg Group” was given at the International Workshop on Geometric and Singular Analysis at Universität Potsdam in March 2013.

2013 An invited lecture entitled “Hilbert–Schmidt and Trace Class Pseudo-Differential Operators” was given at the Analysis Seminar at Università di Torino in April 2013.

2013 An invited lecture entitled “Poincaré Recurrence and the Second Law of Thermodynamics for the Heat Equation” was given at the School of Interdisciplinary Studies at Università di Torino in April 2013.

2014 A series of 6 90-minute lectures on pseudo-differential operators was given in the School of Mathematics and Information Sciences at Guangzhou University in June 2014.

2014 An invited lecture entitled “Spectral Theory and Number Theory of the Twisted Bi-Laplacian” was given in the School of Mathematics and Computational Science at

Zhongzhan University in China in June 2014.

2015 A series of three lectures on pseudo-differential operators was given in the School of Mathematical Sciences at Peking University in November 2015.

2017 An invited lecture entitled “Complex Powers of a Fourth-Order Operator: Heat Kernels, Green Functions and L^p - $L^{p'}$ Estimates” was given at the International Workshop on Geometric and Singular Analysis” at Universität Potsdam in February 2017.

2017 A series of six one-hour lectures entitled “A Short Course on Pseudo-Differential Operators” was given in the Department of Mathematics at the Institute for Advanced Studies in Basic Sciences in Zanjan, Iran in April 2017.

Editorial Boards

1. Communications on Applied Nonlinear Analysis, 1994–
2. PanAmerican Mathematical Journal, 1995–
3. Mathematical Sciences Research Hot-Line, 1997–
4. Applicable Analysis, 1999–2011
5. ISAAC Monograph Series of Kluwer Academic Publishers (Springer as of July 2004), 2002–05
6. International Journal of Applied Mathematical Sciences, 2004–
7. Co-Editor-in-Chief of the Monograph Series on Analysis, Applications and Computation published by World Scientific, 2005–
8. Managing Editor of the Monograph Series “Pseudo-Differential Operators: Theory, Applications and Related Topics” published by Birkhäuser, 2006–
9. Complex Variables and Elliptic Equations, 2007–2011
10. Co-Editor-in-Chief (with Professor Luigi Rodino) of “Journal of Pseudo-Differential Operators and Applications” published by Birkhäuser, 2010–
11. University Politehnica of Bucharest, Scientific Bulletin, Series A: Applied Mathematics and Physics, 2011–

Service

1. Board Member, International Society for Analysis, its Applications and Computation (ISAAC), 1999–
2. Organizer, Fourth ISAAC Congress, York University, August 11-16, 2003
3. Vice-President, ISAAC, 2003–05
4. Director, ISAAC Group in Pseudo-Differential Operators (IGPDO), 2003–
5. President, ISAAC, 2005–09

Books and Monographs

1. An Introduction to Pseudo-Differential Operators, World Scientific, 1991. viii + 114pp.
2. Weyl Transforms, in Universitext Series, Springer-Verlag, 1998. viii + 158pp.
3. An Introduction to Pseudo-Differential Operators, Second Edition, World Scientific, 1999. x + 138pp

4. Localization Operators, Lecture Notes Series 47, Seoul National University, Research Institute of Mathematics, Global Analysis Research Center, 1999. iv + 71pp.
5. Wavelet Transforms and Localization Operators, in Operator Theory: Advances and Applications Series, Vol. 136, Birkhauser, 2002. vii + 156pp.
6. Complex Analysis, in Series on Analysis, Applications and Computation, Vol. 2, World Scientific, 2008. viii + 150pp.
7. Discrete Fourier Analysis, in Series on Pseudo-Differential Operators: Theory and Applications, Vol 5, Birkhäuser, 2011. viii + 176pp.
8. Partial Differential Equations: Topics in Fourier Analysis, CRC Press, 2014. viii + 174pp.
9. An Introduction to Pseudo-Differential Operators, Third Edition, in Series on Analysis, Applications and Computation, Vol. 6, World Scientific, 2014, x + 184pp.

Edited Volumes

1. Analysis and Applications, Editors: H. G. W. Begehr, R. P. Gilbert and M. W. Wong, Kluwer Academic Publishers, 2003. x + 316pp.
2. Progress in Analysis, Volume I, Editors: H. G. W. Begehr, R. P. Gilbert and M. W. Wong, World Scientific, 2003. xxxii + 703pp.
3. Progress in Analysis, Volume II, Editors: H. G. W. Begehr, R. P. Gilbert and M. W. Wong, World Scientific, 2003. xxxii + 786pp.
4. Advances in Pseudo-Differential Operators, Editors: R. Ashino, P. Boggiatto and M. W. Wong, Birkhäuser, 2004. vii + 233pp.
5. Advances in Analysis, Editors: H. G. W. Begehr, R. P. Gilbert, M. E. Muldoon and M. W. Wong, World Scientific, 2005, xiv + 556pp.
6. Pseudo-Differential Operators and Related Topics, Editors: P. Boggiatto, L. Rodino, J. Toft and M. W. Wong, Birkhäuser, 2006, vii + 244pp.
7. Modern Trends in Pseudo-Differential Operators, Editors, J. Toft, M. W. Wong and H. Zhu, Birkhäuser, 2007, vii + 342 pp.
8. Pseudo-Differential Operators: Partial Differential Equations and Time-Frequency Analysis, Editors: L. Rodino, B.-W. Schulze and M. W. Wong, Fields Institute Communications, American Mathematical Society, 2007, vii + 414pp.
9. Pseudo-Differential Operators, Quantization and Signals, Editors: L. Rodino and M. W. Wong, C.M.E. 2006 Summer School, Cetraro, Italy, Lecture Notes in Mathematics, Vol. 1949, Springer, 2008, xxiv + 332pp.
10. New Developments in Pseudo-Differential Operators, Editors: L. Rodino and M. W. Wong, Birkhäuser, 2009, viii + 332pp.
11. Pseudo-Differential Operators: Analysis, Applications and Computations, Editors: L. Rodino, M. W. Wong and H. Zhu, Birkhäuser, 2011, vii + 305pp.
12. Pseudo-Differential Operators, Generalized Functions and Asymptotics, Editors: S. Molahajloo, S. Pilipović, J. Toft and M. W. Wong, Birkhäuser, 2013, viii + 369pp.
13. Pseudo-Differential Operators: Groups, Geometry and Applications, Editors: M. W. Wong and H. Zhu, Birkhäuser, 2017, viii + 239pp.

About 100+ refereed articles have been published or accepted for publication. The titles and reviews of most of these can be viewed from the MathSciNet.

12 Ph.D. students from York University and 1 Ph.D. student from Università degli studi di Torino under my supervision have graduated, 1 co-supervised D.Sc. student from the Tokyo University of Science has graduated.

Employment of Recent Ph.D.s

1. Aparajita Dasgupta, Ph.D. York University (2008), now Visiting Researcher at Imperial College London, UK
2. Shahla Molahajloo, Ph.D. York University (2010), now Assistant Professor at Institute for Advanced Studies in Basic Sciences, Zanjan, Iran
3. Toshinao Kagawa, D.Sc. Tokyo University of Science (2012), now at Shibaura Institute of Technology, Japan
4. Jiawei Li, Ph.D. York University (2014), now Risk Consultant at IBM Canada