

**Curriculum Vitae**  
**Michael C. Haslam, Ph.D., P.Eng.**

**CONTACT INFORMATION:**

Address: S621 Ross Building, 4700 Keele St., Toronto Ontario, M3J 1P3  
Telephone: (416) 736-2100 x44645  
Email: [mchaslam@mathstat.yorku.ca](mailto:mchaslam@mathstat.yorku.ca)  
Web: <http://www.math.yorku.ca/~mchaslam/>

**RESEARCH INTERESTS:**

Numerical analysis, scientific computing, software engineering, computational electromagnetics, fluid dynamics.

**EDUCATION AND DEGREES:**

Ph.D. Applied Mathematics.  
The University of Western Ontario, London, Ontario (2003).

M.Sc. Applied Mathematics.  
The University of Western Ontario, London, Ontario (1997).

B.Sc. Mathematics.  
Carleton University, Ottawa, Ontario (1996).

B.Eng. Aerospace Engineering.  
Carleton University, Ottawa, Ontario (1995).

**EMPLOYMENT HISTORY:**

Associate Professor (07/2011-present), Department of Mathematics and Statistics,  
York University, Toronto, Ontario

Visiting Associate (10/2012-04/2013), Department of Computing and Mathematical Sciences,  
California Institute of Technology, Pasadena, California, USA.

Consulting Software Engineer (06/2007-12/2013), Mathematical Systems and Solutions,  
Pasadena, California, USA.

Assistant Professor (07/2006-06/2011), Department of Mathematics and Statistics  
York University, Toronto, Ontario

Postdoctoral Scholar (05/2003 – 05/2006), Applied and Computational Mathematics  
California Institute of Technology, Pasadena, California, USA

Visiting Student (09/1999 – 04/2000), Aerospace Radar and Navigation Section  
Defence Research Establishment Ottawa, Ottawa, Ontario

### **PROFESSIONAL CERTIFICATIONS:**

1. Professional Engineers Ontario P.Eng. licence 90523630 (2007-present).

### **UNIVERSITY TEACHING:** (In all cases at York University)

#### **Graduate Program Appointments:**

1. Graduate Program in Mathematics and Statistics (2006-present).
2. Graduate Program in Physics and Astronomy (2007-present).

#### **Graduate Courses Taught:**

1. MATH 6652 Numerical Solutions to Differential Equations (Winter 2007, 2008, 2009, 2010, 2011, 2013, 2014, 2015, 2016, 2017).
2. PHYS 5120 Gas and Fluid Dynamics (Fall 2011, 2013, 2015)

#### **Undergraduate Courses Taught:**

1. MATH 2015 Applied Multivariate and Vector Calculus (Fall 2007, 2008, 2009, 2010, 2011, 2013, 2015)
2. MATH 2271 Differential Equations for Scientists and Engineers (Winter 2011, 2012, 2013, 2014, 2015, 2016, 2017)
3. MATH 3090 Computational Mathematics (Fall 2006, 2007, 2008)
4. MATH 3271 Partial Differential Equations (Fall 2009)
5. MATH 4000 Introduction to Scientific Computing with MPI (Winter 2007)
6. MATH 4100 Introduction to Scientific Computing (Summer 2012)
7. MATH 4300 Introduction to GPU Computing with Applications in Science and Engineering (Summer 2010)
8. MATH 4300 Scientific Computing With Modern Fortran and MPI (Summer 2017)
9. PHYS 4120 Gas and Fluid Dynamics (Fall 2017)

#### **Undergraduate Course Design:**

1. EECS 1560 3.0 Introduction to Computing for Mathematics and Statistics. Core course for the first year program in Mathematics and Statistics.

#### **Postdoctoral Supervision:**

1. Ikjyot Singh Kohli. Department of Mathematics and Statistics (2015-2017).
2. Leonel Robert Gonzalez, MITACS postdoctoral fellow. With A. Toms and P.C. Gibson. Department of Mathematics and Statistics (2008-2010). Currently Assistant Professor of Mathematics, University of Louisiana at Lafayette.

**Graduate Student Supervision:**

1. Vishal Siewnarine, Ph.D. thesis supervision. Mathematics and Statistics (2016-pres).
2. Andrea Zubac, M.Sc. thesis supervision (with H. Jankowski). Mathematics and Statistics (2016-pres).
3. Qunxing (Quentin) Xue, M.Sc. thesis supervision. Mathematics and Statistics (2015-pres).
4. Ikjyot Singh Kohli, Ph.D. thesis supervision. Physics and Astronomy (2012-2015).
5. Humaira Haroon, M.Sc. project supervision. Physics and Astronomy (2011-2013).
6. Amir Gershon, M.Sc. project supervision. Physics and Astronomy (2008-2012).
7. Ikjyot Singh Kohli, M.Sc. thesis supervision. Physics and Astronomy (2011-2012).
8. Naveed Islam, M.A. project supervision. Mathematics and Statistics (2012).
9. Nimret Sanhu, M.A. project supervision. Mathematics and Statistics (2012).

**Undergraduate Student Supervision:**

1. Branislav Nolic, summer research project 2010 (currently enrolled in M.Sc. program in Mathematics and Statistics at York). Recipient of a Sharcnet Summer Research Award \$5K.
2. Mohammad Samani, summer research project 2010 (currently enrolled in Ph.D. program in Physics at UBC). Recipient of a Sharcnet Summer Research Award \$5K.
3. Nathan Gold, summer research project 2012 (currently enrolled in Ph.D. program in Mathematics and Statistics at York University).
4. Adam Shaul, summer research project 2014 (currently enrolled in B.Sc. program in Physics and Astronomy at Western University).
5. Patrik Pirkola, summer research project 2015 (currently enrolled in M.Sc. program in Physics and Astronomy at York University).
6. Patrik Pirkola, summer research project 2016 (currently enrolled in M.Sc. program in Physics and Astronomy at York University).

**Research Assistant Supervision:**

1. Alain Marsman, summer research assistant 2008 (currently enrolled in Ph.D. program in Physics and Astronomy at York).
2. John Yawney, summer research assistant 2010 (currently enrolled in Ph.D. program in Applied Mathematics at the University of Waterloo).
3. Branislav Nolic, summer research assistant 2011 (currently enrolled in Ph.D. program in Mathematics and Statistics at York).
4. Mohammad Samani, summer research assistant 2011 (currently enrolled in Ph.D. program in Physics at UBC).

**Graduate Student Thesis Supervisory Committees:**

1. Dong Hao. Ph.D. Program in Mathematics and Statistics (2016-present).
2. Hom Kandel. Ph.D. Program in Mathematics and Statistics (2016-present).
3. Anthony Leung. Ph.D. Program in Physics and Astronomy (2014-present).
4. Mohammad Tavalla. Ph.D. Program in Mathematics and Statistics (2012-present).
5. Jiawei Li. Ph.D. Program in Mathematics and Statistics (2011-2014).
6. Dongdong He. Ph.D. Program in Mathematics and Statistics (2009-2012).
7. Robert Milverton. M.Sc. Program in Mathematics and Statistics (2008-2011).

## **EXTERNAL SERVICE:**

1. Southern Ontario Smart Computing Innovation Platform (SOSCIP) Scientific Advisory Committee (2017-present).
2. Shared Hierarchical Academic Research Computing Network (SHARCNET) Board of Directors (2017-present).
3. Chair, Provincial SHARCNET Site Leader Committee (2017-present).

## **UNIVERSITY SERVICE:**

### **University Committees:**

1. University Advisory Committee on Computing (2013-present).

### **Faculty Committees:**

1. Faculty of Science and Engineering Petitions Committee (2008-2011)
2. Faculty of Science Curriculum Committee (2013-2014)
3. Fields Institute-York University Colloquium Committee (2016-present)

### **Departmental Appointments:**

1. Director, Applied Mathematics, Department of Mathematics and Statistics (2013-present)

### **Departmental Committees:**

1. Chair, Applied Mathematics Hiring Committee (2017-pres).
2. Chair, Applied Mathematics Tenure and Promotion Adjudicating Committee (2016-pres).
3. Applied Mathematics Tenure and Promotion File Preparation Committee (2016-pres).
4. Chair, Department of Mathematics and Statistics Computer Facilities Committee (2015-pres).
5. Department of Mathematics and Statistics Curriculum Committee (2015-pres).
6. Department of Mathematics and Statistics Pure and Applied Mathematics Hiring Committee (2015-2016).
7. Chair, Department of Mathematics and Statistics Actuarial Science Hiring Committee (2014-2015).
8. Department of Mathematics and Statistics Executive Committee (2013-pres).
9. Chair, Applied Mathematics Tenure and Promotion File Adjudicating Committee (2013-2014).
10. Applied Mathematics Tenure and Promotion File Preparation Committee (2013-2014).
11. Department of Mathematics and Statistics Actuarial Science Hiring Committee (2013-2014).
12. Department of Mathematics and Statistics Computer Facilities Committee (2013-2015).
13. Chair, Department of Mathematics and Statistics Computer Facilities Committee (2008-2012).
14. Applied Mathematics Curriculum Committee (2007-2009, 2011-2012)
15. Department of Mathematics and Statistics Industrial Liaison Committee (2007-2009)

**Conference Committees:** (See also SHARCNET service)

1. ICSCA2016 Tenth International Conference on Scientific Computing and Applications Organizing Committee.
2. SONAD 2014 Conference Committee (Chair). Hosted by York University.
3. BIRS 5-day workshop on eigenvalues/singular values and fast PDE algorithms: acceleration, conditioning and stability. June 24-29, 2012.
4. Canadian Applied and Industrial Mathematics Society Annual Meeting (CAIMS 2012), Scientific Committee. Hosted by University of Toronto.
5. SONAD 2008 Conference Committee. Hosted by York University.

**Conference Session Organization:**

1. ICSCA2016 Tenth International Conference on Scientific Computing and Applications. Session on Recent Advances in Algorithms for Scattering and Inverse Problems. Fields Institute, Toronto, Ontario, June 2016.
2. CMS 2015 Summer Meeting; Session on the Recent Advances in the Mathematics of Electromagnetic and Acoustic Imaging.

**University Hiring Committees:**

1. CPM 6411- Director of FSE Computing Services, Feb. 2009.
2. YUSA 6555 - Technical Document and Information Analyst, July 2009.
3. YUSA 6822 - Systems Administrator, Feb. 2010.
4. YUSA 6896 - Technical Document and Information Analyst, June 2010.
5. CPM 6921 - Director of FSE Computing Services, Sept. 2010.

**York-SHARCNET Service:** (<https://www.sharcnet.ca>)

1. York University SHARCNET Site Leader (2008-present).
2. High Performance Computing Specialist Hiring Committee, July 2008.
3. SHARCNET Research Day 2009 Conference Committee. Hosted by University of Waterloo.
4. SHARCNET Research Day 2010 Conference Committee. Hosted by York University.

**York-SHARCNET Visualization Centre:**

Research computing centre I established in 2010 after approval of funds from SHARCNET and space allocation from York University Faculty of Science and Engineering. The equipment consists of five high-performance multi-core workstations with total list price of approximately \$125,000. Ongoing tasks related to the centre involve upkeep of equipment/software and student training.

**Other Service:**

1. Department of Mathematics and Statistics Computer Coordinator (2008-2012,2015-present)

## **RESEARCH FUNDING:**

### **External Funding:**

1. Natural Sciences and Engineering Research Council of Canada Discovery Grant (\$15,000 annually for years 2016 through 2021).
2. Natural Sciences and Engineering Research Council of Canada Discovery Grant (\$14,000 annually for years 2007 through 2012).
3. SHARCNET Site Leader grant funds (\$8000 annually for years 2008, 2009, 2010, 2011, 2012)
4. SHARCNET Site Leader grant funds (\$4000 annually for years 2013, 2014, 2015, 2016)
5. MITACS matching funds for POTSI Project (<http://math.ucalgary.ca/potsi/>). PI Michael Lamoureux, University of Calgary. (\$4000 for 2009).

### **Internal Funding:**

1. York University Minor Research Grant (\$6,000 for 2016).
2. York University Minor Research Grant (\$3,500 for 2016).
3. York University Minor Research Grant (\$15,000 for 2015).
4. York University Startup Funds (\$25,000 in 2006).
5. York University Junior Faculty Funds (\$250 in 2007).

## **HONOURS AND AWARDS:**

1. Natural Sciences and Engineering Research Council of Canada Postdoctoral Fellowship (2003) .
2. Natural Sciences and Engineering Research Council of Canada Postgraduate Scholarship B (1998) .
3. University of Western Ontario Faculty of Graduate Studies / Society of Graduate Students Graduate Student Teaching Award (1998) .
4. Ontario Graduate Scholarship (1997, 1998).
5. University of Western Ontario President's Scholarship for Graduate Studies (1996, 1997).

## **PROFESSIONAL MEMBERSHIPS:**

1. Professional Engineers Ontario (PEO).
2. Canadian Applied and Industrial Mathematics Society (CAIMS).
3. Institute of Electrical and Electronics Engineers (IEEE).

## **PUBLICATIONS:**

### **Journal Articles:**

Kohli, I.S., Haslam, M.C. (2017) An Analysis of the Replicator Dynamics for an Asymmetric Hawk-Dove Game. International Journal of Differential Equations **2017**, Article ID 8781570.

- Kohli, I.S., Haslam, M.C. (2016) A Degenerate Bogdanov-Takens Normal Form for FLRW Cosmologies. Submitted arXiv:1607.02401.
- Kohli, I.S., Haslam, M.C. (2016) Stochastic Eternal Inflation in a Type I Universe. *Physical Review D* **93**, 023514.
- Kohli, I.S., Haslam, M.C. (2015) Mathematical issues in eternal inflation. *Classical and Quantum Gravity* **32**(7), 075001.
- Alobaidi, G., Mallier, R., Haslam, M.C., (2014) Integral transforms and American options: Laplace and Mellin go Green. *Acta Math. Univ. Comenianae* **83**(2): 245-266.
- Kohli, I.S., Haslam, M.C. (2014) Exploring vacuum energy in a two-fluid Bianchi Type I Universe. Submitted to *Classical and Quantum Gravity* Aug. 2014. arXiv:1402.1967.
- Kohli, I.S., Haslam, M.C. (2014) On the dynamics of a closed viscous universe. *Physical Review D* **89**, 043518.
- Kohli, I.S., Haslam, M.C. (2013) Dynamical systems approach to a Bianchi type I viscous magnetohydrodynamic model, *Physical Review D* **88**, 063518.
- Kohli, I.S., Haslam, M.C. (2013) Future asymptotic behavior of a nontilted Bianchi type IV viscous model, *Physical Review D* **87**, 063006.
- Haslam, M.C., Smith, C.J., Alobaidi, G., Mallier, R. (2011) Some nonlinear vortex solutions, *International Journal of Differential Equations*, Article ID 929626.
- Bruno, O.P., Haslam, M.C. (2010) Efficient high-order evaluation of scattering by periodic surfaces: vector parametric gratings and geometric singularities, *Waves in Random and Complex Media* **20**(4): 530-550.
- Haslam, M.C. (2009) A study of anomalous scattering from lamellar diffraction gratings. *Canadian Applied Math Quarterly* **17**(3) 487-500.
- Bruno, O.P., Haslam, M.C. (2009) Efficient high-order evaluation of scattering by periodic surfaces: deep gratings, high frequencies, and glancing incidences, *Journal of the Optical Society of America A* **26**(3): 658-668.
- Bruno, O.P., Haslam, M.C. (2007) Super-algebraic solution of the wire-antenna problems, *SIAM Journal of Scientific Computing* **29**(4): 1375-1402.
- Alobaidi, G., Haslam, M.C., and Mallier, R., (2006) Vortices on a sphere, *Mathematical Modeling and Analysis* **11**(4): 357-364.
- Haslam, M.C., Mallier R. (2003) Vortices on a cylinder, *Physics of Fluids* **15**: 2087-2088.

Mallier R., Haslam, M. (2003) Modal interactions in a Bickley jet: comparison of theory with direct numerical simulations, *Mathematics and Computers in Simulation* **62**: 109-115.

Mallier, R., Haslam, M. (1999) Interactions between pairs of oblique waves in a Bickley jet, *European Journal of Mechanics B/Fluids* **18**: 227-243.

Haslam, M.C., Zamir, M. (1998) Pulsatile flow in tubes of elliptic cross section, *Annals of Biomedical Engineering* **26**: 780-787.

### **Manuscripts in Progress:**

Kohli, I.S., Haslam, M.C. (2016) A Dynamical Probability Distribution for the Cosmological Constant.

Kohli, I.S., Haslam, M.C. (2016) Einstein's Field Equations as a Fold Bifurcation. arXiv:1607.05300.

### **Articles in Refereed Conference Proceedings:**

Bruno, O., Haslam, M.C., Paffenroth, R., Cable, V.P. (2006) Fast and accurate electromagnetic (EM) modeling, In: *Mars Technology Program Communications and Tracking Technologies for Mars Exploration*, Dimitrios Antsos Ed., Proceedings of the 2006 IEEE Aerospace Conference.

Mallier, R., Haslam, M. (2001) Modal interactions in a Bickley jet by direct numerical simulation, Third AFOSR International Conference on Direct Numerical Simulation and Large Eddy Simulation (TAICDL), DNS/LES -- Progress and Challenges. Proceedings of the Third AFOSR International Conference on DNS/LES (ed. C.Liu et. al.), 517-524.

Mallier R., Haslam, M. (2001) Modal interactions in a Bickley jet: comparison of theory with direct numerical simulation, XXVI General Assembly of the European Geophysical Society, *Geophysical Research Abstracts* 3.

Mallier, R., Haslam, M. (2001) Modal interactions in a Bickley jet: comparison of theory with direct numerical simulations, 2<sup>nd</sup> IMACS International Conference on Nonlinear Evolution Equations and Wave Phenomena: Computation and Theory.

Mallier, R., Haslam, M. (2001) Modal interactions in a Bickley jet by direct numerical simulation, Proceedings of the 9<sup>th</sup> Annual Conference of the CFD Society of Canada (ed. G.E.Schneider), 477-482.

Mallier, R., Haslam, M. (2001) Modal interactions in a Bickley jet by direct numerical simulation, USNCCM VI: Sixth US National Congress on Computational Mechanics.

Mallier, R., Haslam, M. (2001) Three-dimensional transition in a Bickley jet: comparison of theory with DNS, 14<sup>th</sup> Australian Fluid Mechanics Conference, Proceedings of the 14<sup>th</sup> Australasian Fluid Mechanics Conference (ed. B.B. Dally), 753-756.

## **PRESENTATIONS:**

### **International Conference Presentations:**

Haslam, M.C., A High Order Algorithm for Computing the Electromagnetic Response of a Thin Wire with a Current Source. SIAM Conference on Mathematical Aspects of Material Science. Philadelphia, Pennsylvania, May 2016.

Haslam, M.C., A High Order Numerical Treatment of Operators Arising in Scattering from Periodic Penetrable Media. International Conference on Analysis Applications and Computations. Fields Institute, Toronto, Ontario, September 2015.

Haslam, M.C. Efficient solvers for the curved wire antenna problem. BIRS workshop on eigenvalues/singular values and fast PDE algorithms: acceleration, conditioning and stability. Banff, Alberta, 2012.

Haslam, M.C. High-order solvers for large driven wire arrays. Central Section Meeting of the American Mathematical Society 2010. Notre Dame, Indiana.

Bruno, O., Haslam, M. Super-Algebraic Solution of the Wire Antenna Problems. AFOSR/AFRL Electromagnetics Workshop, San Antonio, Texas, 2006.

Bruno, O., Haslam, M. Scattering by Deep Singular Gratings: Fast and Accurate Solutions with Application to Inverse Problems in Microelectronics, AFOSR/AFRL Electromagnetics Workshop, San Antonio, Texas, 2005.

### **National Conference Presentations:**

Haslam, M.C, New Source Models for Radiation from Thin Wire Antennas. AMMCS 2017 International Conference, Waterloo, ON.

Haslam, M.C, A High Order Method for Electromagnetic Scattering from Metallic Gratings. Canadian Mathematical Society Summer Meeting 2015, Charlottetown, PEI.

Haslam, M.C, A High Order Method for Electromagnetic Scattering from Metallic Gratings. 2015 AMMCS-CAIMS Congress, Waterloo, ON.

Haslam, M.C, A High order method for the scattering problem from layered conducting dielectric media. Canadian Mathematical Society Winter Meeting 2013, Ottawa, ON.

Haslam, M.C., Fast and accurate calculation of acoustic potentials with application to scattering from periodically rough surfaces. Canadian Mathematical Society Summer Meeting 2012, Regina, SK.

Haslam, M.C., High-order solution of the grating diffraction problem for singular perfect conductors. Meeting of the Canadian Applied and Industrial Mathematics Society 2009, London, Ontario.

Haslam, M.C., Three-dimensional curved wire antenna problems. Winter 2008 Meeting of the Canadian Mathematical Society, Ottawa, Ontario.

Haslam, M.C., Spectrally accurate solution of the straight-wire antenna problem, Meeting of the Canadian Applied and Industrial Mathematics Society 2005, Winnipeg, Manitoba.

**Seminars (since 2011):**

A high order solver for integral equations with discontinuous data. Inverse Problems and Image Analysis Seminar. Fields Institute, October 28, 2016.

A high order numerical treatment of operators arising in scattering from periodic penetrable media. Inverse Problems and Image Analysis Seminar. Fields Institute, February 4, 2016.

A high order method for the scattering problem from layered conducting dielectric media. Department of Mathematical Sciences, New Jersey Institute of Technology, April 28 2014.

A high order method for the scattering problem from layered dielectric media. Department of Applied and Industrial Mathematics, University of Ontario Institute of Technology, November 21, 2013.

High order wire antenna solvers. Department of Applied and Industrial Mathematics, University of Ontario Institute of Technology, November 15, 2011.