

Nilima Nigam

Address:

Simon Fraser University, Department of Mathematics, 8888 University Drive,
Burnaby, BC, V5A 1S6

<http://www.math.sfu.ca/nigam>

Education

- 1996-1999 Ph.D., Applied Mathematics, Department of Mathematical Sciences,
University of Delaware, Newark, Delaware.
Ph.D. Advisor: Professor George C. Hsiao
Thesis: "Variational problems for a class of boundary value problems
exterior to a thin domain"
- 1994-1996 M.S., Applied Mathematics, Department of Mathematical Sciences,
University of Delaware, Newark, Delaware.
- 1991-1994 B.Sc.(Honors), Physics, Indian Institute of Technology, Kharagpur, India.

Academic Experience

- 7/2013-present Professor, Department of Mathematics,
Simon Fraser University, Burnaby, Vancouver, Canada.
- 7/2008-06/2013 Associate Professor, Department of Mathematics,
Simon Fraser University, Burnaby, Vancouver, Canada.
- 7/2008-04/2010 Associate Scientific Director, MITACS, Canada
- 06/2008-12/2008 Associate Professor, Department of Mathematics and Statistics,
McGill University, Montreal, Quebec, Canada.
- 2001-2008 Assistant Professor, Department of Mathematics and Statistics,
McGill University, Montreal, Quebec, Canada.
- 1999-2001 Industrial Postdoctoral Fellow, Institute for Mathematics and its Applications,
University of Minnesota, Minneapolis, Minnesota, USA.
Industrial partner: Seagate Technologies.
- 1994-1999 Graduate Teaching/Research Assistant, Department of Mathematical Sciences ,
University of Delaware, Newark, Delaware, USA.

Refereed

- [1] George C. Hsiao and Nilima Nigam. A transmission problem in the exterior of thin domain. In *Homage to Gaetano Fichera*, volume 7 of *Quad. Mat.*, pages 177–205. Dept. Math., Seconda Univ. Napoli, Caserta, 2000.
- [2] G. C. Hsiao, P. B. Monk, and N. Nigam. Error analysis of a finite element-integral equation scheme for approximating the time-harmonic Maxwell system. *SIAM J. Numer. Anal.*, 40(1):198–219, 2002.
- [3] G. C. Hsiao and N. Nigam. A transmission problem for fluid-structure interaction in the exterior of a thin domain. *Adv. Differential Equations*, 8(11):1281–1318, 2003.
- [4] D. Lewis and N. Nigam. Geometric integration on spheres and some interesting applications. *J. Comput. Appl. Math.*, 151(1):141–170, 2003.
- [5] Catalina Anghel, Gary Margrave, and Nilima Nigam. Locating anomalous seismic attenuation: a mathematical investigation. *Can. Appl. Math. Q.*, 12(4):439–478, 2004.
- [6] David P. Nicholls and Nilima Nigam. Exact non-reflecting boundary conditions on general domains. *J. Comput. Phys.*, 194(1):278–303, 2004.
- [7] Dmitry Jakobson, Michael Levitin, Nikolai Nadirashvili, Nilima Nigam, and Iosif Polterovich. How large can the first eigenvalue be on a surface of genus two? *Int. Math. Res. Not.*, (63):3967–3985, 2005.
- [8] Debra Lewis, Nilima Nigam, and Peter J. Olver. Connections for general group actions. *Commun. Contemp. Math.*, 7(3):341–374, 2005.
- [9] Inti Zlobec, Russ Steele, Nilima Nigam, and C. Compton, Caroline. A predictive model of rectal tumor response to preoperative radiotherapy using classification and regression tree methods. *Clin Cancer Res.*, 11(15), 2005.
- [10] David P. Nicholls and Nilima Nigam. Error analysis of an enhanced DtN-FE method for exterior scattering problems. *Numer. Math.*, 105(2):267–298, 2006.
- [11] Leonid Chindelevitch, David P. Nicholls, and Nilima Nigam. Error analysis and preconditioning for an enhanced DtN-FE algorithm for exterior scattering problems. *J. Comput. Appl. Math.*, 204(2):493–504, 2007.
- [12] George C. Hsiao, Nilima Nigam, and Anna-Margarete Sändig. Innovative solution of a 2D elastic transmission problem. *Appl. Anal.*, 86(4):459–482, 2007.

- [13] S. A. Maslowe and N. Nigam. The nonlinear critical layer for Kelvin modes on a vortex with a continuous velocity profile. *SIAM J. Appl. Math.*, 68(3):825–843, 2007.
- [14] T. Akchurin, T. Aissiou, N. Kemeny, E. Prosk, N. Nigam, and S. Komarova. Complex dynamics of osteoclast formation and death in long-term cultures. *PLoS One*, 3(5), 2008.
- [15] S. Gemmrich and N. Nigam. A boundary integral strategy for the Laplace-Beltrami-Dirichlet problem on the sphere S^2 . In *Frontiers of applied and computational mathematics*, pages 222–230. World Sci. Publ., Hackensack, NJ, 2008.
- [16] S. Gemmrich, N. Nigam, and O. Steinbach. Boundary integral equations for the Laplace-Beltrami operator. In *Mathematics and computation, a contemporary view*, volume 3 of *Abel Symp.*, pages 21–37. Springer, Berlin, 2008.
- [17] Sherwin A. Maslowe and Nilima Nigam. Vortex Kelvin modes with nonlinear critical layers. In *IUTAM Symposium on Hamiltonian Dynamics, Vortex Structures, Turbulence*, volume 6 of *IUTAM Bookser.*, pages 163–175. Springer, Dordrecht, 2008.
- [18] Tommy L. Binford, Jr., David P. Nicholls, Nilima Nigam, and T. Warburton. Exact non-reflecting boundary conditions on perturbed domains and hp -finite elements. *J. Sci. Comput.*, 39(2):265–292, 2009.
- [19] Marc D. Ryser, Nilima Nigam, and Svetlana V. Komarova. Mathematical modeling of spatio-temporal dynamics of a single bone multicellular unit. *J. Bone Miner. Res.*, 24(5):860–970, 2009.
- [20] Marc D. Ryser, Svetlana V. Komarova, and Nilima Nigam. The cellular dynamics of bone remodeling: a mathematical model. *SIAM J. Appl. Math.*, 70(6):1899–1921, 2010.
- [21] George C. Hsiao, Nilima Nigam, Joseph E. Pasciak, and Liwei Xu. Error analysis of the DtN-FEM for the scattering problem in acoustics via Fourier analysis. *J. Comput. Appl. Math.*, 235(17):4949–4965, 2011.
- [22] Harun Kurkcu, Nilima Nigam, and Fernando Reitich. An integral representation of the Green function for a linear array of acoustic point sources. *J. Comput. Phys.*, 230(8):2838–2856, 2011.
- [23] S. Gemmrich, J. Gopalakrishnan, and N. Nigam. Convergence analysis of a multigrid algorithm for the acoustic single layer equation. *Appl. Numer. Math.*, 62(6):767–786, 2012.

- [24] Nilima Nigam and Joel Phillips. High-order conforming finite elements on pyramids. *IMA J. Numer. Anal.*, 32(2):448–483, 2012.
- [25] Nilima Nigam and Joel Phillips. Numerical integration for high order pyramidal finite elements. *ESAIM Math. Model. Numer. Anal.*, 46(2):239–263, 2012.
- [26] Marc D. Ryser, Nilima Nigam, and Paul F. Tupper. On the well-posedness of the stochastic Allen-Cahn equation in two dimensions. *J. Comput. Phys.*, 231(6):2537–2550, 2012.
- [27] Mary-Catherine Kropinski and Nilima Nigam. Fast integral equation methods for the Laplace-Beltrami equation on the sphere. *Adv. Comput. Math.*, 40(2):577–596, 2014.
- [28] Hadi Rahemi, Nilima Nigam, and James M Wakeling. Regionalizing muscle activity causes changes to the magnitude and direction of the force from whole muscles - a modelling study. *Frontiers in Physiology*, 5(298), 2014.
- [29] Eldar Akhmetgaliyev, Oscar Bruno, and Nilima Nigam. A boundary integral algorithm for the Laplace Dirichlet-Neumann mixed eigenvalue problem. *Journal of Computational Physics*, 2015.
- [30] M. Dewapriya, R. Rajapakse, and N. Nigam. Influence of hydrogen functionalization on the fracture strength of graphene and the interfacial properties of graphene-polymer nanocomposite. (*in press*) *Carbon*, 2015.
- [31] Hadi Rahemi, Nilima Nigam, and James Wakeling. The effect of intramuscular fat on skeletal muscle mechanics: implications for the elderly and obese. *Journal of the Royal Society Interface*, 2015.

Book Chapters

- [32] Nilima Nigam. Mathematics in industry, mathematics in the classroom: analogy and metaphor. In Susan Oesterle, editor, *Canadian Mathematics Education Study Group 2014*.
- [33] Solomon Garfunkel, Rolf Jeltsch, and Nilima Nigam. Communication and collaboration. In *Educational Interfaces between Mathematics and Industry*, pages 319–332. Springer International Publishing, 2013.

- [34] Nilima Nigam and José Francisco Rodrigues. University and academic technical/vocational education. In *Educational Interfaces between Mathematics and Industry*, pages 173–183. Springer International Publishing, 2013.

Refereed Conferences

- [35] Nilima Nigam. A variational method in acoustics related to an impenetrable scatterer coated by a thin penetrable shell. In *Mathematical and numerical aspects of wave propagation (Santiago de Compostela, 2000)*, pages 90–95. SIAM, Philadelphia, PA, 2000.
- [36] Sherwin Maslowe. Kelvin modes with nonlinear critical layers on a vortex with a continuous velocity profile. In *APS Division of Fluid Dynamics Meeting Abstracts*, volume 1, 2005.
- [37] H Rahemi, N Nigam, and JM Wakeling. Effects of muscle pennation on its kinematics and force development. In *INTEGRATIVE AND COMPARATIVE BIOLOGY*, volume 50, pages E285–E285. OXFORD UNIV PRESS INC JOURNALS DEPT, 2001 EVANS RD, CARY, NC 27513 USA, 2010.

Tech Reports

- [38] Martin Caberlin, Nilima Nigam, and Sanjive Qazi. Invariant manifolds in a model for the gaba receptor. 2003.
- [39] Nilima Nigam. Modelling quality and warranty cost. 2003.
- [40] Rita Aggarwala, C Sean Bohun, Rachel Kuske, Gerry Labute, Wei Lu, Nilima Nigam, and Fabien M Youbissi. Product-driven data mining. *Canadian Applied Mathematics Quarterly*, 12(1):1–24, 2004.
- [41] David Cottrell, Huaxiong Huang, and Nilima Nigam. Incorporating estimation error into optimal portfolio allocation. 2006.
- [42] Bamdad Hosseini, Nilima Nigam, and John Stockie. On regularizations of the δ distribution. (*under revision*) *Journal of Computational Physics*, 2015.
- [43] Joe Coyle, Nilima Nigam, and Lee Safranek. A discontinuous galerkin strategy for age-structured population models with nonlinear death modulus. *to be submitted*, February 15, 2015.

Honours and Awards

- 2008-14 Canada Research Chair in Applied Mathematics
Simon Fraser University, Burnaby, Vancouver, Canada.
- 2008 Nominee, McGill Carrie Derick Award for Graduate Student Supervision
- 2007 **NSERC Discovery Accelerator Supplement, \$ 120 K**
- 2007 Nominee, McGill Carrie Derick Award for Graduate Student Supervision
- 2005 McGill Principal's Prize for Excellence in Teaching
at the Assistant Professor level.
- 2005 Academic mentor, Ben-Fusaro Award-winning team
in the Mathematical Contest in Modeling.
- 2002 SIAM 100-dollar, 100-digit challenge, with Martin Gander, Felix Kwok,
Sebastian Loisel, and Paul Tupper. One of 20 winning teams.
- 1997 Graduate Student Scholarship, College of Arts and Sciences,
University of Delaware. Nominated and awarded \$1000 by faculty members for excellence
in academic achievement.
- 1997 Baxter-Sloyer Award, Department of Mathematical Sciences, University of Delaware.
Awarded for excellence as a teaching assistant.
- 1996 Graduate Student Scholarship, College of Arts and Sciences,
University of Delaware. Nominated and awarded \$1000 by faculty members for excellence
in academic achievement.
- 1996 Departmental Fellowship, Department of Mathematical Sciences, University of Delaware.
Awarded for scholastic achievement.
- 1991 Gold Medalist, (Indian) National Graduate Physics Examination, 1991.
Ranked in top 5 out of over 3000 participants in a nation-wide competition in Physics
open to all graduates and undergraduates.
- 1991 Winner, "Mahindra Search for Talent Scholarship", St. Xavier's College, Bombay.
Awarded for highest CGPA in the freshmen class.
- 1991 IISc Summer Research Award, Indian Institute of Science, Bangalore, India.
Awarded for scholastic achievement in Physics.

Professional Service

- Editorial board, *Math-in-Industry Case Studies*, 2007-2010, *Journal of Engineering Mathematics*, 2011-present, *SIAM Journal of Applied Mathematics*, 2012-2015, *SIAM News*, 2012-present, *Computers and Mathematics with Applications*, 2012-present, *Royal Society Open Science*, 2014-2015

- Member, Mathematics Evaluation Group, NSERC, 2014-2016.
- Panelist, National Science Foundation, USA. 2002, 2003, 2004, 2006, 2007, 2008, 2009, 2012, 2013, 2014.
- Referee, European Science Research Council.
- Member, Advancement of Mathematics committee of the Canadian Mathematical Society, 2007-2010.
- Member, SIAM Major Awards Committee, 2010-2012.
- Chair, Canadian Study Group Coordination Committee, 2011-12.
- Member-at-large, CAIMS, 2011-2014.
- Canadian Applied Mathematics representative on the ICIAM/ICME international study on integrating industrially-relevant applications into mathematics education.

Involvement in Industrial Study-Groups.

- * Graduate Student Math Modeling Camp, Oxford, UK, April 2014. Academic Mentor.
- * 5th Fields-Mitacs Industrial Problems Workshop, 2014. Co-organizer/Scientific Committee.
- * CRM 5th Industrial Problem Solving Workshop, 2013. Co-organizer/Scientific Committee.
- * 4th Fields-Mitacs Industrial Problems Workshop, 2012. Co-organizer/Scientific Committee.
- * 3rd Fields-Mitacs Industrial Problems Workshop, 2010. Co-organizer/Scientific Committee.
- * 2nd Fields-MITACS Industrial Problems Workshop, 2008, Fields. Co-organizer/Scientific Committee.
- * Graduate Student Math Modeling Camp, 2007, RPI. Academic Mentor.
- * 1st Fields-Mitacs Industrial Problems Workshop, 2006. Co-organizer/Scientific Committee.
- * 10th PIMS-MITACS Industrial Problem Solving Workshop, 2006, SFU. Participant.
- * 8th PIMS-MITACS Industrial Problem Solving Workshop, 2004, UBC. Participant.
- * 7th PIMS-MITACS Industrial Problem Solving Workshop, 2003, Calgary. Participant.

Conference/Workshop/Seminar Organization

- McGill Applied Mathematics Seminar Series 2001-2002. (Co-organizer) 18 speakers total.
- McGill Applied Mathematics Seminar Series 2002-2003. Organizer, 2002-2003. 22 speakers total.
- CRM-ISM Colloquium series, 2003-2004. Co-organizer.
- Minisymposium on Biochemical Kinetics, SIAM Annual meeting , Montreal, June 2003. Co-organized with Prof. M.Mackey.
- Minisymposium on Truncation Methods for PDE, ICIAM, Sydney, Australia July 2003. Co-organized with Prof. D. P. Nicholls.
- Tomlinson Seminar on "Teaching in Universities" by Prof. J. Cwikla, McGill April 10, 2003. Organizer.
- Working seminar in applied mathematics, McGill, Winter 2003-Winter 2006. Organizer (2003-2005), co-organizer (Fall 2005-Winter 2006).
- "Advances in Computational Scattering", 5-day workshop at BIRS Feb. 18-23, 2006. Co-organized with Profs. D.P. Nicholls and F. Reitich.
- CRM-McGill Applied Mathematics Seminar series, Fall 2006. Organizer.
- McGill Applied Mathematics Seminar series, 2006-2007. 28 speakers.
- Diversity in the Mathematics and Scientific Communities, 2-day workshop at BIRS, July 27-29th, 2007. Co-organized with Profs. R. Kuske, K.K.Park, S. Pinho, and Konstantina Trivisa.
- MITACS-CORS Annual Conference, 2010. 400 participants. Lead organizer with A. Ingolffson.
- WAVES 2011, Vancouver. 250 participants. Lead local organizer.
- CAIMS 2012 Annual meeting, Toronto. 200 participants. Lead organizer with H. Huang and A. Gumel.
- Minisymposium on PDE on surfaces, WONAPDE, Concepcion, Chile, January 2013.

Funding and Grants

Does not include funding raised for conferences organized

- 04/2012 NSERC Discovery Grant. \$ 30,000 X 5
- 05/2010 MITACS-AFMNet. \$ 5,000
- 05/2010 MITACS Internship Grant, joint with SG Geophysics . \$ 15,000
- 08/2010 MITACS Internship Grant, joint with McMillan-McGhee. \$ 30,000
- 05/2009 MITACS Internship Grant, joint with Sky Research. \$ 15,000
- 05/2009 MITACS Theme Leader for the Environment Research Grant \$ 7,000 X 3
- 05/2007 NSERC Discovery Accelerator Supplement, total support \$ 120,000
- 04/2007 NSERC Discovery Grant, annual support \$ 23,000 X 5
- 04/2004 FQRNT Nouveaux Chercher grant, annual support \$ 15,400 X 3
- 04/2004 FQRNT Nouveaux Chercher equipment grant, \$ 21,840
- 04/2004 FQRNT Team Grant Member "Regroupement quebecois sur les materiaux de pointe".
\$ 930,000 for six years with a review in three years.
- 04/2003 Tomlinson Innovations in Teaching Award. \$50,000 for first year,
\$ 46,000 for remaining two years.
PI: J. Labute. Co-Pis: D. Bryant, V.Jaksic, A. Hundemer, R. Steele.
- 2003 McGill Seminar grant for the Applied Mathematics/Statistics seminar series.
Joint with Prof. G. Styan.
- 05/2002 NSERC research grant, annual support \$17,000 X 4
- 05/2002 Royal Bank Teaching and Learning Improvement Fund, \$5000.
Awarded by the Royal Bank TALIF fund, matching funds from Faculty of Science.
With Prof. D. Bryant.
- 2002 McGill Seminar grant for the Applied Mathematics/Statistics seminar series.
Joint with Prof. G. Styan.
- 01/2001 McGill Faculty of Science start-up grant.

Conferences and invited talks

all the talks below were invited presentations since 2001. Please note my travel was limited in 2005-2006 and 2008-2010 for childcare reasons.

Public lectures

- Mathematics of Planet Earth Public Lecture, Winnipeg, April 22, 2013: *Mathematics, light and sound.*
- Mathematics of Planet Earth Public Lecture, Montreal, Feb. 15, 2013: *Mathematics, light and sound.*
- Teach-In! Issues at the frontline of climate change, SFU, Dec.2, 2014: *Divestment from fossil fuels and 'The Engaged University'*

Conferences/minisymposia

- Colloque de mathématiques de Laval CRM - ISM, Nov. 27, 2014: *On the well-posedness of the 2D stochastic Allen-Cahn equation*
- Pacific Northwest Numerical Analysis Seminar, Portland State University, Oct. 18, 2014: *Numerical approximation of Laplace eigenvalues with mixed boundary data*
- London Mathematical Society - EPSRC Durham Symposium, Durham, July 8, 2014: *Pyramidal Finite Elements*
- Plenary lecture, Canadian Mathematics Education Study Group, Edmonton, June 1, 2014: *Is there interesting mathematics in industry?*
- Probability seminar, U. Oregon, May 6, 2014: *On the well-posedness of the 2D stochastic Allen-Cahn equation.*
- U. British Columbia Institute of Applied Mathematics seminar, Vancouver, February 6, 2014: *A mathematical model of bone remodeling*
- Spectral Theory of Laplace and Schroedinger Operators, BIRS, July 2013: *Numerical analysis of spectral problems, validated numerics, and proof*
- First Canadian Symposium in Numerical Analysis and Scientific Computing (CSNASC), CAIMS Annual Meeting, Québec City, June 19, 2013. *Numerical approximation of mixed Dirichlet-Neumann eigenpairs.*
- Mathematics of finite elements and applications (MAFELAP 14). Minisymposium on high order finite elements, Brunel, June 11, 2013 *High order finite elements on pyramids.*
- Mathematics of Planet Earth Public Lecture, Winnipeg, April 22, 2013: *Mathematics, light and sound*

- Colloque de mathématiques de Montréal CRM - ISM, Feb. 15, 2013: *Eigenproblems, numerical approximation and proof*
- Mathematics of Planet Earth Public Lecture, Montreal, Feb. 15, 2013: *Mathematics, light and sound*
- Winter 2013 Research Symposium: Alumni Lecture. University of Delaware, Feb. 8, 2013: *On the well-posedness of the 2D stochastic Allen-Cahn equation.*
- Fourth Chilean workshop on the numerical analysis of PDE (WONAPDE), Chile, Jan. 14-19 2013: *Boundary integral equation methods for Laplace-Beltrami BVP*
- Eigenvalues/singular values and fast PDE algorithms: acceleration, conditioning, and stability, BIRS, June 2012: *Eigenproblems on manifolds and the Hot Spot conjecture*
- Frontiers in Applied and Computational Mathematics, Newark, May 2012: *Fast BIE methods on compact manifolds*
- Maseeh Colloquium in Applied Mathematics, Portland State University, April 2012: *Mathematical models for bone remodeling and tumor growth*
- Minisymposium on Chebfun and applications, SIAM Annual Meeting, July 19, 2011: *Weird patterns and swirly flows using Chebfun*
- Applied Mathematics Perspectives: Numerical Methods for Incompressible Flow, Vancouver July 14, 2011: *High order finite elements on pyramids and incompressible fluid flow*
- IRMACS Canda Research Chairs Seminar Series, Feb. 24, 2011: *Exterior calculus, approximation theory and numerical analysis: high-order FEM approximation on pyramids*
- SFU Biophysics Seminar, SFU, Feb.12, 2011: *Mathematical models of bone remodeling*
- AMS Sectional meeting, Notre Dame, Nov. 7, 2010: *Integral equations for PDE on surfaces*
- Finite element circus, Minneapolis, Nov. 5, 2010 *High order finite elements on pyramids*
- SFU Computational Science day plenary talk, SFU, August 2010: *How do bones grow? From lab to desktop, a mathematical journey.*
- U. Delaware Dept. of Mathematical Sciences Colloquium, April 4 2009: *Bone growth and destruction at the cellular level: a mathematical model*
- Second Joint Canada-France meeting of the mathematical sciences, Montreal, July 2008: *The nonlinear critical layer for Kelvin modes on a vortex with a continuous velocity profile.*
- Frontiers in Applied and Computational Mathematics, Newark, May 2008: *Integral Equation Methods and Vortex Motion on Spheres*
- ICES Colloquium, U.of Texas at Austin, Feb. 2008: *High Order Pyramidal Finite Elements for the De-Rham complex*

- Simon Fraser University CSE Seminar, Nov. 2007: *A spatio-temporal model of bone growth and destruction*
- U. British Columbia SCAIM seminar, Nov. 2007: *High Order Pyramidal Finite Elements for the De-Rham complex*
- 5-day BIRS Workshop on Canada-China Industrial Mathematics, August 7, 2007: *A model of bone growth and destruction.*
- Rice Computational Science Colloquium, March 12, 2007: *An error analysis for a combined DtN-FE method.*
- Plenary speaker, Canadian Undergraduate Mathematics Conference, July 2006: *Is there really interesting mathematics in industry?*
- Abel Symposium, May 27-30, 2006: *Fast methods in computational scattering.*
- McMaster PDE Seminar, November 19, 2004: *An error analysis for perturbative Steklov-Poincaré maps.*
- First Joint Canada-France meeting of the mathematical sciences, Toulouse, July 2004: *Perturbative Steklov-Poincaré maps for general domains.*
- Applied and Industrial Mathematics Seminar, York University, February 2004: *Truncation techniques: the good, the bad, and the not-so-ugly.*
- Conference on PDE and their Application, Notre Dame University, August 2003: *Perturbative Techniques for Dirichlet-Neumann maps.*
- 5th Industrial Congress on Industrial and Applied Mathematics, Sydney, Australia, July 2003: *Truncation using the PML– stability and Perturbation Methods.*
- Computational Science and Engineering seminar, McGill, April 2003: *The good, the bad, and the ugly: truncation methods for infinite computational domains.*
- GIREF seminar series, Université Laval, October 2002: *Perturbative techniques for Dirichlet-Neumann maps.*
- Foundations of Computational Mathematics, Minneapolis, July 2002: *Geometric integration: a closer look at applications in material science.*
- Applied Mathematics seminar, U. Notre Dame, April, 2002: *Computational Scattering Theory- dealing with Infinity.*
- Center for Physics of Materials Seminar, McGill, March, 2002: *Numerical Methods in Micromagnetics.*
- Joint Mathematics Meetings, San Diego, January 2002: *Geometric Integration: An application in Material Science.*
- First Micromagnetics Meeting, Princeton, 2001: *Thoughts on algorithms for micromagnetics.*

- Applied Math and Numerical Analysis Seminar, U. of Minnesota, March 2001: *The overlapping method for exterior electromagnetic scattering problems.*

Table 1: Undergraduate Courses at Simon Fraser University

COURSE	TERM	AUDIENCE
<i>Real Analysis (MATH425/725)</i>	<i>Fall '13</i>	<i>Mathematics majors and honours</i>
<i>Intr. Fourier Methods & PDE</i>	<i>Winter '13</i>	<i>Mathematics and physics majors</i>
<i>Real Analysis (MATH425/725)</i>	<i>Fall '11</i>	<i>Mathematics majors and honours</i>
<i>Intro to Analysis II (MATH320)</i>	<i>Winter '11</i>	<i>Mathematics majors and honours</i>
<i>Numerical Linear Algebra (MACM409/709)</i>	<i>Summer '10</i>	<i>Mathematics, Science and Engineering</i>
<i>Intro to Analysis I (MATH242)</i>	<i>Winter '10</i>	<i>Mathematics majors and honours</i>
<i>Selected Topics in Mathematics (Math 398)</i>	<i>Winter '09</i>	<i>Mathematics, Science and Engineering</i>

Table 2: Graduate Courses at Simon Fraser University

<i>Partial Differential Equations (APMA901)</i>	<i>Fall 2012</i>
<i>Spectral Methods and Approximation Theory (APMA 929)</i>	<i>Winter 2012</i>
<i>Numerical Partial Differential Equations (APMA922)</i>	<i>Fall 2010</i>

Other courses at SFU:

- *"Introduction to Sobolev spaces" MATH 895, graduate reading course in Winter 2013*
- *"PDE and pseudo-differential operators" MATH 895, graduate reading course in Summer 2012*
- *"Finite element methods using deal-ii" MATH 895, graduate reading course in Summer 2010*
- *"Industrial Mathematics Project" MATH402, undergraduate writing course in Winter 2010*
- *"Working seminar in applied mathematics", graduate working seminar in Winter and Summer 2009.*

Other courses at McGill:

- *Stiff ODE and their Analysis, graduate reading course, in Fall 2002.*
- *Domain decomposition, graduate reading course, in Winter 2003.*
- *Finite element methods for Maxwell's equations, graduate reading course, Winter 2004.*
- *Boundary Integral Equations, graduate reading course, Fall 2005.*
- *Differential Complexes in Finite element methods, graduate reading course, Winter 2006.*
- *Preconditioning strategies, graduate reading course, Winter 2006.*

Table 3: Undergraduate Courses at McGill.

COURSE	TERM	AUDIENCE
<i>Elementary Numerical Analysis (Math 317/387)</i>	<i>Fall '01</i>	<i>Math Majors and Honours</i>
<i>Elementary Numerical Analysis(Math 317)</i>	<i>Fall '02</i>	<i>Math Majors and Mechanical Engineering</i>
<i>Matrix Computations(Math 327/397)</i>	<i>Winter '03</i>	<i>Math Majors and Honours</i>
<i>Elementary Numerical Analysis(Math 317)</i>	<i>Fall '03</i>	<i>Math Majors and Mechanical Engineering</i>
<i>Numerical Analysis(Math 317)</i>	<i>Winter '04</i>	<i>Math Honours</i>
<i>Differential Equations(Math 375)</i>	<i>Fall '04</i>	<i>Math, Physics Honours</i>
<i>Honours PDE (Math 375)</i>	<i>Fall '05</i>	<i>Math, Physics Honours</i>
<i>Honours PDE (Math 375)</i>	<i>Fall '06</i>	<i>Math, Physics Honours</i>
<i>Numerical Analysis (Math 317)</i>	<i>Fall '06</i>	<i>Math Majors and Mechanical Engineering</i>

Table 4: Graduate Courses at McGill

<i>Applied Partial Differential Equations (Math 586)</i>	<i>Fall 2001,</i>
<i>Applied Partial Differential Equations (Math 586)</i>	<i>Fall 2002</i>
<i>Spectral and finite element methods (Math 762)</i>	<i>Fall 2003</i>
<i>Applied Partial Differential Equations (Math 581)</i>	<i>Winter 2006</i>
<i>Applicable analysis for numerical analysts (Math 762)</i>	<i>Winter 2007.</i>

- *Methods of theoretical condensed matter physics*, team-taught graduate course, Winter 2006.
- *Analysis 2*, undergraduate reading course, Summer 2007.

I also taught undergraduate (numerical analysis, linear algebra) and graduate (applied PDE) courses at McGill during the year 2007-2008, but do not have access to the teaching evaluations anymore. I am therefore not including this data in the tables.