

- 2009 External reader of M.Sc. thesis
of Xiaobo ZHU, at Carleton University,
- 2009 External reader of Ph.D. thesis of Imad CHADDAD,
at Riga Technical University, Riga,
- 2007- Editor of a special issue of *Cubo*,
- 2007- Associate editor of *J. of Wavelet Theory and Applications*,
- 2007 External reader of Ph.D. thesis of Iona DZENITE,
at Riga Technical University, Riga,
- 2007 Evaluator for EPSRC Research Proposal, UK,
- 2006 Evaluator for EPSRC Research Proposal, UK,
- 2006 Referee for *Comp. Math. Applic.*, *Proc. AMS*,
International J. Computers & Math. with Applic.,
Applicable Analysis, Image and Vision Computing,
Trans. on Internet Research.
- 2005- Associate editor of *Scientific Proc. of Riga Technical University*.
- 2005 External reader of M.Sc. (Sci. syst.) thesis
of Baozhu LIANG, 2005.03.24.
- 2004 Evaluator for EPSRC Research Proposal, UK.
- 2004 Reader of Ph.D. thesis in Information Technology
of Hussein A. ALY, SITE, 2004.02.13.
- 2002-05 External Assessor of the Mathematics Institute Malaya University
Kuala Lumpur, Malaya.
- 2002-05 Undergraduate Mathematics program external examiner
University Malaya.
- 2002 External reader of Ph.D. thesis in telecommunications
of Carlos Vásquez, at INRS, Montréal.
- 2001 External reader of Ph.D. thesis in mathematics
of Kazem GHANBARI, Carleton University, Ottawa.
- 2001 External reader of Ph.D. thesis in mathematics
of Zuosheng HU, Carleton University, Ottawa.
- 2001 External reader of Ph.D. thesis in mathematics
of Jingde DU, York University, Toronto.

f) Supervision of graduate studies:

Total number : 24 M.Sc., 6 Ph.D.
Number completed: 21 M.Sc., 6 Ph.D.
Number in progress : 0 M.Sc., 5 Ph.D.

Students presently supervised and date of start

- Huong Thu Nguyen, Ph.D. (Math.) Sept. 2009–
- Hemza Yagoub, Ph.D. (Math.) May 2009–
- Parviz Rasoulipour, Ph.D. (Math.) Sept. 2008–

- Han Hao, Ph.D. (Math.) sept. 2006–
- Donald McLaren, Ph.D. (Math.) Sept. 2006–

Student supervised or co-supervised since 1999.

- Artur Przybylo, M.Sc. (Math.) Sept. 2007–June 2009
- Hemza Yagoub, M.Sc. (Math.) Sept. 2007–May 2009
- Melanie McKay, M.Sc. (Math.) Sept. 2006–March 2009
- Vladan Bozic, M.Sc. (Math.) Sept. 2006–May 2008
- Yuchuan Zhuang, M.Sc. (Systems Science) Sept. 2006–2008
- Yi Li, M.Sc. (Systems Science) Jan. 2006–2008
- Yu Zhang, M.Sc. (Syst. Sci) May 2006–2007
- Yuchuan Zhuang, M.Sc. (Comp. Sci..) sept. 2005–abandoned
- Emile Pelletier, M.Sc. (Math.) sept. 2001, co-supervision
- Weibin Qi, M.Sc. (Sci. Syst.) sept. 2002
- Mohamed Ali Hajji, Ph.D. (Math.) (Carleton), 2002–2003
- Tharmalingam RATNARAJAH, Ph.D. (Math.) Sept. 2000–2003, co-supervision
- Dr. Eric Xinhou Hua, M.Sc. (Sci. Syst.) Sept. 2000–May 2002.
- M,Sc. (Phys.-Chem.) Steve Desjardins, Ph.D. (Math.), Sept. 1997, co-supervision from Sept. 97 to March 99, supervision April 99 – May 2002.

g) Graduate Courses : 2008: MAT5580 (matrix computations), MAT5991 T (delay differential equations); 2007: MAT 5187 (numerical methods for ordinary differential equations); 2006: MAT 5187 (numerical methods for ordinary differential equations); 2006: MAT 5187 (wavelets for hearing-aid); 2003: CSI 5190;

h) External Research Grants :

Main rechearcher : Rémi VAILLANCOURT.

2007–12	NSERC	24 000\$	Multidisciplinary numerical research
2003–07	NSERC	24 000\$	Multidisciplinary numerical research
1999–03	NSERC	12 075\$	Multidisciplinary numerical research

Internal Research Grants :

Main researcher : Rémi VAILLANCOURT.

2008	Development grant	8 000\$	Wavelets
2007	FGSP	6 500\$	Doct. st.
2007	Development grant	14 000\$	Wavelets
2006	Development grant	12 133\$	Wavelets
2005	Development grant	12 133\$	Wavelets
2004	Development grant	12 000\$	Wavelets
2003	Development grant	14 500\$	Wavelets
2002	Development grant	19 100\$	Wavelets
2001	Development grant	14 257\$	Wavelets

j) Summary of Publications :

1) Total number in career :

- Books authored: 8
- Books edited or translated: 3
- Chapters in books: 5
- Papers in refereed journals: 160
- Communications in refereed conference proceedings: 15
- Patents: 1
- Technical reports: 125
- Communications and presentations: 33
- Reviews for *Mathematical Reviews* and *Zentralblatt*: 718

2) Detailed Publications in last seven years.

Books authored :

1. R. Ashino & R. Vaillancourt, *Hayawakari Matlab (Matlab Compendium)*, 1st ed., xvi–211 pp., 11th printing, Kyoritsu Shuppan, Tokyo, 2nd ed. 2009, (Japanese). 2e éd. 2009. Translation into Korean, 1998.

Books edited :

1. A. Guran, D. J. Steigmann, A. L. Smirnov & R. Vaillancourt, éd., *Advances in Mechanics of Solids: In Memory of Prof. Eliza Hasganu*, Series on Stability, Vibration and Control of Systems, Series B, Vol. 15, World Scientific, Singapore, 2006.

Chapters in books :

1. Xinhua Hua & R. Vaillancourt, *Dynamics of permutable maps*. in *Early Days in Complex Dynamics*, pp. 402–407, A. Rosa, ed. In press.
2. A. A. Kolyshkin, R. Vaillancourt & I. Volodko, *On the stability of transient viscous flow in an annulus*, in *Advances in Mechanics of Solids: In Memory of Prof. E. M. Hasganu*, Series on Stability, Vibration and Control of Systems, Series B, Vol. 15, World Scientific, Singapore, 2006, pp. 139–150.

Papers in refereed journals :

1. R. Ashino, T. Nguyen-Ba & R. Vaillancourt, *Low-dimensional linear codes with high breakdown points by QR decomposition*, Int. J. Pure Appl. Math., in press.
2. A. Madrane & R. Vaillancourt, *Three-dimensional adaptive central schemes on unstructured staggered grids*, SIAM J. Sci. Computing, in press.
3. T. Nguyen-Ba, V. Bozic, E. Kengne & R. Vaillancourt, *Nine-stage Multi-derivative Runge–Kutta Method of order 12*, Publications de l’Institut Mathématique, Beograd, Serbie, in press.
4. H. Yagoub, T. Nguyen-Ba, T. Giordano & R. Vaillancourt, *Convergence of the variable-step variable-order 3-stage Hermite–Birkhoff ODE/DDE solver of order 5 to 15*, Scientific Proceedings of Riga Technical University, **41**(51), (2009), in press.
5. E. Kengne & R. Vaillancourt, *2D Ginzburg-Landau system of complex modulation for coupled nonlinear transmission lines*, J. Infrared, Millimeter, Terahertz Waves, **30**(7) (2009) 679–699 doi:10.1007/s10762-009-9485-7.
6. E. Kengne & R. Vaillancourt, *Exact equilibrium solutions of a diffusion equation with a nonlinear diffusion term by means of Jacobian elliptic functions*, Integral Transforms and Special Functions, in press.
7. T. Nguyen-Ba, H. Hao, H. Yagoub & R. Vaillancourt, *One-step 5-stage Hermite–Birkhoff–Taylor ODE solver of order 12*, Appl. Math. Comput., **211** (2009) 313–328, doi:10.1016/j.amc.2009.01.043.
8. E. Kengne, R. Vaillancourt & B. A. Malomed, *Modulational instability and exact soliton and periodic solutions for two weakly coupled effectively 1D condensates trapped in a double-well potential*, Int. J. of Modern Physics B. In press.
9. R. Ashino, T. Nguyen-Ba & R. Vaillancourt, *Decoding low-dimensional linear codes by linear programming*, Can. Appl. Math. Q., **16**(3) (2008) 241–254.
10. H. Yagoub, T. Nguyen-Ba & R. Vaillancourt, *Variable-step 7-stage Hermite–Birkhoff–Taylor DDE Solver of order 8*, Scientific Proceedings of Riga Technical University, **37**(50), (2008), 130–144.
11. T. Nguyen-Ba, V. Bozic, E. Kengne & R. Vaillancourt, *One-step 9-stage Hermite–Birkhoff–Taylor ODE Solver of order 10*, J. Appl. Math. and Comput., DOI 10.1007/s12190-008-0216-3, (déc. 2008).

12. T. Nguyen-Ba, E. Kengne & R. Vaillancourt, *One-step 4-stage Hermite–Birkhoff–Taylor ODE Solver of order 12*, Can. Appl. Math. Q., **16**(1) (Spring 2008) 77–94.
13. T. Nguyen-Ba, H. Yagoub, Y. Zhuang & R. Vaillancourt, *Variable-step variable-order 2-stage Hermite–Birkhoff–Obrechhoff ODE solver of order 3 to 14*, Scientific Proceedings of Riga Technical University, **37**(50) (2008) 79–102.
14. E. Kengne & R. Vaillancourt, *Integrability conditions for two-component Bose-Einstein condensates in periodic potentials*, Scientific Proceedings of Riga Technical University, **37**(50) (2008) 103–111.
15. T. Nguyen-Ba, H. Hao, H. Yagoub, & R. Vaillancourt, *One-step 9-stage Hermite–Birkhoff–Taylor DAE solver of order 11*, Scientific Proceedings of Riga Technical University, **37**(50) (2008) 55–78.
16. E. Kengne & R. Vaillancourt, *Bose-Einstein condensates in optical lattices: The cubic-quintic nonlinear Schrödinger equation with a periodic potential*, J. of Physics B: Atomic, Molecular & Optical Physics, **41** (2008) 205202 (9pp).
17. E. Kengne & R. Vaillancourt, *Transmission of solitary pulse in dissipative nonlinear transmission lines*, Communications in Nonlinear Science and Numerical Simulations, **14** (2009) 304–3810. doi:10.1016/j.cnsns.2008.08.016
18. T. Nguyen-Ba, V. Bozic, E. Kengne & R. Vaillancourt, *One-step 9-stage Hermite–Birkhoff–Taylor ODE Solver of order 10*, J. Appl. Math. and Comput., DOI 10.1007/s12190-008-0216-3, (Dec. 2008).
19. E. Kengne, V. Bozic, M. Viana & R. Vaillancourt, *Transverse stability of solitary waves propagating in coupled nonlinear dispersive transmission lines*, Physical Review E, **78**, 026603 (2008) 1–8.
 item E. Kengne & R. Vaillancourt, *Propagation of solitary waves on lossy nonlinear transmission lines*, International J. of Modern Physics B, **23**(23) (2009) 1–18.
20. E. Kengne, R. Vaillancourt & B. A. Malomed, *Coupled nonlinear Schrödinger equations for solitary-wave and kink signals propagating in discrete nonlinear dispersive transmission lines*, Int. J. of Modern Physics B, **23**(2) (2009) 133–147.
21. V. Bozic, A. Przybylo, T. Nguyen-Ba & R. Vaillancourt, *One-step 9-stage Hermite–Birkhoff–Taylor ODE Solver of order 11*, University Scientific J., Telecommunications and Electronics Series, University of Technology and Life Sciences (UTP), Bydgoszcz, Poland, **11**, (2008) 33–52.

22. E. Kengne & R. Vaillancourt, *Coupled nonlinear Schrödinger equations for solitary-wave and kink signals propagating in discrete nonlinear dispersive transmission lines*, International J. of Modern Physics B, in press.
23. T. Nguyen-Ba, V. Bozic & R. Vaillancourt, *One-step 7-stage Hermite–Birkhoff–Taylor ODE solver of order 13*, International J. Pure Appl. Math., **43**(4) (2008) 569–592.
24. T. Nguyen-Ba, P. W. Sharp & R. Vaillancourt, *Hermite–Birkhoff–Obrechhoff 4-stage 4-step ODE solver of order 14 with quantized stepsize*, J. of Computational and App. Math., **222**(2) (2008) 608–621.
25. X.-H. Hua & R. Vaillancourt, *Prime factorization of entire functions*, Cubo, **10**(1) (2008) 1–10.
26. T. Nguyen-Ba, P. W. Sharp, H. Yagoub & R. Vaillancourt, *Hermite–Birkhoff–Obrechhoff 3-stage 4-step ODE solver of order 14 with quantized stepsize*, Can. Appl. Math. Q., **15**(2) (2007) 181–201.
27. R. Vaillancourt & V. G. Zakharov, *Interval wavelets adapted to monomial differential operators*, J. of Wavelet Theory and Applications, **1**(1) (2007) 31–63.
28. T. Nguyen-Ba, P. W. Sharp, H. Yagoub, & R. Vaillancourt, *Hermite–Birkhoff–Obrechhoff 5-stage 4-step ODE solver of order 15 with quantized stepsize*, Scientific Proceedings of Riga Technical University, **33**, Boundary Field Problems and Computer Simulation, 49th issue, (2007) 6–25.
29. E. Kengne & R. Vaillancourt, *Traveling wave propagation on coupled nonlinear transmission lines*, Scientific Proceedings of Riga Technical University, **33**, Boundary Field Problems and Computer Simulation, 49th issue, (2007) 42–58.
30. T. Nguyen-Ba, V. Bozic, E. Kengne & R. Vaillancourt, *One-step 4-stage Hermite–Birkhoff–Taylor ODE Solver of order 14*, Scientific Proceedings of Riga Technical University, **33**, Boundary Field Problems and Computer Simulation, 49th issue, (2007) 26–41.
31. E. Kengne & R. Vaillancourt, *Modulational stability of solitary states in a lossy nonlinear electrical line*, Far East J. of Appl. Math., in press.
32. E. Kengne & R. Vaillancourt, *Exact solutions of the Gross–Pitaevskii equation in periodic potential in the presence of external source*, J. Mathematical Physics, **48**(2007) 073520-1–13.
33. X.-H. Hua, R. Vaillancourt & X. L. Wang, *Permutable functions concerning differential equations*, J. Aust. Math. Soc., **83** (2007) 369–384.

34. T. Nguyen-Ba, H. Yagoub, Y. Zhang & R. Vaillancourt, *Variable-step variable-order 3-stage Hermite-Birkhoff-Obrechhoff ODE solver of order 4 to 14*, Can. Appl. Math. Q., **14**(4) (Winter 2006) 413–437.
35. R. Vaillancourt, R. & V. G. Zakharov, *Biorthogonal wavelet bases for solving time-dependent PDEs*, Scientific Proceedings of Riga Technical University, **29**, Boundary Field Problems and Computer Simulation, 48th issue, (2006) 25–52.
36. T. Nguyen-Ba, H. Yagoub, S. J. Desjardins & R. Vaillancourt, *Variable-step variable-order 4-stage HermiteBirkhoffObrechhoff ODE solver of order 5 to 14*, Scientific Proceedings of Riga Technical University, **29**, Boundary Field Problems and Computer Simulation, 48th issue, (2006) 53–80.
37. M. A. Hajji & R. Vaillancourt, *Matrix derivation of Gaussian quadratures*, Scientific Proceedings of Riga Technical University, **29**, Boundary Field Problems and Computer Simulation, 48th issue, (2006) 198–213.
38. E. Kengne & R. Vaillancourt, *Stabilized soliton in attractive Bose-Einstein condensate in hyperbolic potential*, Scientific Proceedings of Riga Technical University, **29**, Boundary Field Problems and Computer Simulation, 48th issue, (2006) 81–94.
39. E. Kengne & R. Vaillancourt, *Ginzburg–Landau system of complex modulation equations for a distributed nonlinear-dissipative transmission lines*, Nonlinear Oscillations, **9**(4) (2006) 451–489.
40. T. Nguyen-Ba, H. Yagoub, Y. Li & R. Vaillancourt, *Variable-step variable-order 3-stage Hermite–Birkhoff ODE Solver of order 5 to 15*, Can. Appl. Math. Q., **14**(1) (Spring 2006) 43–69.
41. T. Nguyen-Ba & R. Vaillancourt, *Hermite–Birkhoff–Obrechhoff 3-stage 6-step ODE solver of order 14*, Can. Appl. Math. Q., **13**(2) (Summer 2005) 151–181.
42. A. Morimoto, R. Ashino & R. Vaillancourt, *Multiwavelet neural network pre-processing of irregularly sampled data*, Scientiae Mathematicae Japonicae, (e-2006) 301–317.
43. A. Morimoto, Y. Shimano, R. Ashino & R. Vaillancourt, *Wavelets and block singular value denoising*, Scientific Proceedings of Riga Technical University, **29**, Boundary Field Problems and Computer Simulation, 48th issue, (2006) 6–14.
44. P. W. Sharp & R. Vaillancourt, *New Nyström pairs for the general second-order problem*, Scientific Proceedings of Riga Technical University, **29**, Boundary Field Problems and Computer Simulation, 48th issue, (2006) 15–24.

45. P. W. Sharp & R. Vaillancourt, *Explicit Pouzet Runge-Kutta pairs for Volterra integro-differential equation*, Scientific Proceedings of Riga Technical University, **29**, Boundary Field Problems and Computer Simulation, 48th issue, (2006) 95–104.
46. T. Ratnarajah & R. Vaillancourt, *Complex singular Wishart matrices and applications*, Computers Math. Applic., **50** (2005) 399–411.
47. A.A. Kolyshkin, R. Vaillancourt & I. Volodko, *Weakly nonlinear analysis of rapidly decelerated channel flow*, IASME Transactions, Issue 7, Volume 2, (September 2005) 1157–1165.
48. T. Ratnarajah & R. Vaillancourt, *Quadratic forms on complex random matrices and multiple-antenna systems*, IEEE Transactions on Information Theory, **51**(8), (Aug. 2005) 2976–2984.
49. T. Ratnarajah, R. Vaillancourt & M. Alvo, *Complex random matrices and Rician channel capacity*, Problems of Information Transmission, **41**(1) (Jan.-March 2005) 1–21.
50. R. Ashino, A. Morimoto, M. Nagase & R. Vaillancourt, *Image compression with multiresolution singular value decomposition and other methods*, Mathematical and Computer Modeling, **41** (2005) 773–790.
51. T. Ratnarajah, R. Vaillancourt & M. Alvo, *Eigenvalues and condition numbers of complex random matrices*, SIAM J. Matrix Anal. Appl. **26**(2) (2005) 441–456.
52. A.A. Kolyshkin, R. Vaillancourt & I. Volodko, *Approximate method for the calculation of the change in impedance due to a flaw in a conducting cylindrical layer*, Scientific Proceedings of Riga Technical University, **26**, Boundary Field Problems and Computer Simulation, 47th issue, (2005) 62–66.
53. A. Madrane, A. El Boukili & R. Vaillancourt, *A new overlapping unstructured grid algorithm*, Scientific Proceedings of Riga Technical University, **26**, Boundary Field Problems and Computer Simulation, 47th issue, (2005) 7–17.
54. E. F. Pelletier & R. Vaillancourt, *Modelling instrument's sounds using Malvar wavelets*, Scientific Proceedings of Riga Technical University, **26**, Boundary Field Problems and Computer Simulation, 47th issue, (2005) 18–24.
55. X.-H. Hua & R. Vaillancourt, *Dynamics of permutable meromorphic functions*, Scientific Proceedings of Riga Technical University, **26**, Boundary Field Problems and Computer Simulation, 47th issue, (2005) 25–31.

56. P. W. Sharp & R. Vaillancourt, *Error growth of some symplectic explicit Runge–Kutta Nyström methods for a simulation of the gas giants*, Scientific Proceedings of Riga Technical University, **26**, Boundary Field Problems and Computer Simulation, 47th issue, (2005) 32–38.
57. P. W. Sharp & R. Vaillancourt, *Efficient order-five second-derivative explicit Runge–Kutta pairs with interpolants*, Scientific Proceedings of Riga Technical University, **26**, Boundary Field Problems and Computer Simulation, 47th issue, (2005) 39–47.
58. A. Morimoto, Y. Shimano, R. Ashino & R. Vaillancourt, *Wavelet and block singular value image denoising*, Scientific Proceedings of Riga Technical University, **26**, Boundary Field Problems and Computer Simulation, 47th issue, (2005). To appear.
59. T. Ratnarajah, R. Vaillancourt & M. Alvo, *Jacobians and hypergeometric functions in complex multivariate analysis*, Can. Appl. Math. Q., **12**(2) 213–239 (2004).
60. A. El Boukili, A. Madrane & R. Vaillancourt, *Multifrontal solution of sparse unsymmetric matrices arising from semiconductor equations*, Can. Appl. Math. Quaterly, **12**(2) 137–152 (2004).
61. M. S. Ghidaoui. A. A. Kolyskin & R. Vaillancourt, *Transient turbulent flow in a pipe*, Scientific Proceedings of Riga Technical University, **21** (Boundary Field Problems and Computer Simulation, 46th issue, (2004) 19–24.
62. M. Yoshikawa, R. Ashino & R. Vaillancourt, *Case study on SVD multiresolution analysis*, Scientific Proceedings of Riga Technical University, **21**, Boundary Field Problems and Computer Simulation, 46th issue, (2004) 65–79.
63. W. Qi, A. Morimoto, R. Ashino & R. Vaillancourt, *Image denoising using spline and block singular value decomposition*, Scientific Proceedings of Riga Technical University, **21**, Boundary Field Problems and Computer Simulation, 46th issue, (2004) 36–46.
64. T. Nguyen-Ba & R. Vaillancourt, *Hermite–Birkhoff Differential Equation Solvers*, Scientific Proceedings of Riga Technical University, **21**, Boundary Field Problems and Computer Simulation, 46th issue, (2004) 47–64.
65. A. Morimoto, R. Ashino & R. Vaillancourt, *Curve fitting to irregularly sampled data by multiwavelets and neural networks*, Scientific Proceedings of Riga Technical University, **21**, Boundary Field Problems and Computer Simulation, 46th issue, (2004) 25–35.
66. R. Ashino, M. Nagase & R. Vaillancourt *Pseudodifferential operators in $L^p(\mathbb{R}^n)$ spaces*. Cubo, **6**(3) (2004) 91–129.

67. M. Zhao, M. S. Ghidaoui, A. A. Kolyshkin & R. Vaillancourt, *On the stability of oscillatory pipe flow*, Technische Mechanik **24**(3–4) (2004) 289–296.
68. G. Frank, X. H. Hua & R. Vaillancourt, *Meromorphic functions sharing the same zeros and poles*, J. Can. Math./Can. J. Math., **56**(6) (2004) 1190–1227.
69. T. Ratnarajah, R. Vaillancourt & M. Alvo, *Jacobians and hypergeometric functions in complex multivariate analysis*, Can. Appl. Math. Q., **12**(2) 213–239 (2004).
70. M. A. Hajji, S. Melkonian & R. Vaillancourt, *Representation of differential operators in wavelet basis*, Computers Math. Applic., **47** (2004) 1011–1033.
71. G. Frank, X. H. Hua & R. Vaillancourt, *Fonctions méromorphes aux zéros et pôles communs / Meromorphic functions sharing the same zeros and poles*, C. R. Acad. Sci. Paris, Ser. I. **338**(10) (2004) 763–768.
72. A. Morimoto, R. Ashino & R. Vaillancourt, *Pre-processing design for multi-wavelet filters using neural networks*, International J. of Wavelets, Multiresolution and Information Processing, **2**(2) (2003) 133–148.
73. R. Ashino, S.J. Desjardins, A.A. Kolyshkin & R. Vaillancourt, *Noise smoothing in the Fourier domain by a multi-directional diffusion*, Scientific Proceedings of Riga Technical University, **16** (Boundary Field Problems and Computer Simulation, 45th issue, (2003) 27–43.
74. T. Ratnarajah, R. Vaillancourt & M. Alvo, *Complex random matrices and Rayleigh channel*, Communications in Information and Systems, **3**(2) (2003) 119–138. Electronic version: <http://www.ims.cuhk.edu.hk/~cis>.
75. T. Ratnarajah, R. Vaillancourt & M. Alvo, *Complex random matrices and applications*, Compte rendu mathématique, Mathematical Reports Acad. Sci. Canada, **25**(4) (2003) 114–120.
76. R. Ashino, S.J. Desjardins, C. Heil, M. Nagase & R. Vaillancourt, *Smooth tight frame wavelets and image microanalysis in the Fourier domain*, Computers Math. Applic., Computers Math. Applic., **45**(10–11) (2003) 1551–1579.
77. S. Tavoularis, A. Sahrapour, N. S. Ahmed, A. Madrane & R. Vaillancourt, *Towards Optimal Control of Blood Flow in Artificial Hearts*, Cardiovasc. Eng., **8**(1/2) (2003) 20–31.
78. A. El Boukili, A. Madrane & R. Vaillancourt, *Unstructured grid adaptation for convection-dominated semiconductor equations*, Can. Appl. Math. Q., **10**(4) (Winter 2002) 447–472.

79. R. Ashino, S.J. Desjardins, C. Heil, M. Nagase & R. Vaillancourt, *Microlocal analysis, smooth frames and denoising in Fourier space*, J. of Asian Information-Science-Life, **1**(2) (2002) 153–160.
80. S. J. Desjardins & R. Vaillancourt, *Image De-noising by a Multi-directional Diffusion Equation*, Comptes rendus mathématique, Mathematical Reports Acad. Sci. Canada, **24**(2) 2002, 77–84.
81. A. A. Kolyshkin & R. Vaillancourt, *Flow stability in the Taylor–Dean system: A wide gap problem*, Latvian J. of Physics and Technical Sciences, no. 1, (2002) 17–25.
82. A. A. Kolyshkin & R. Vaillancourt, *Asymptotic solution for unsteady viscous flow in a plane channel*, Latvian J. of Physics and Technical Sciences, no. 3, (2001) 12–19.
83. R. Ashino, C. Heil, M. Nagase & R. Vaillancourt, *Microlocal filtering with multiwavelets*, Computers Math. Applic., **41** (2001) 111–133.

Papers submitted to refereed journals :

1. H. Yagoub, A. Przybylo, T. Nguyen-Ba & R. Vaillancourt, *Two VSVO Hermite–Birkhoff and Hermite–Birkhoff–Obrechhoff DAE solvers*, Can. Appl. Math. Q., soumis 2009.08.21
2. T. Nguyen-Ba, H. Nguyen-Thu & R. Vaillancourt, *Strong stability preserving 4-stage Hermite–Birkhoff time-discretization methods* Appl. Math. Comput., soumis 2009.08.21.
3. V. Bozic, T. Nguyen-Ba & R. Vaillancourt, *A three-stage, VSVO, Hermite–Birkhoff–Taylor, ODE solver*, Appl. Math. Comput., révision 2009.08/07
4. T. Nguyen-Ba, H. Nguyen-Thu & R. Vaillancourt, *Strong stability preserving 3-stage Hermite–Birkhoff time-discretization methods* Appl. Num. Math., soumis 2009.07.24.
5. R. Ashino, T. Nguyen-Ba & R. Vaillancourt, *Low-dimensional compressed sensing with high breakdown-point mean by QR decomposition* J. Franklin Inst., soumis 2009.05.16.
6. T. Nguyen-Ba, H. Yagoub, H. Hao & R. Vaillancourt, *Solution of electric circuits by a 9-stage Hermite–Birkhoff–Taylor DAE solver of order 11*, J. Franklin Inst., soumis 2009.04.28.
7. H. Yagoub, T. Nguyen-Ba & R. Vaillancourt, *Variable-step variable-order 3-stage Hermite–Birkhoff–Obrechhoff DDE solver of order 4 to 14*, Appl. Math. Comput., soumis 2009.04.08.

8. T. Nguyen-Ba, H. Hao, H. Yagoub & R. Vaillancourt, *One-step 9-stage Hermite–Birkhoff–Taylor DAE solver of order 10*, J. Appl. Math. and Comput., révision 2009.03.23.
9. T. Nguyen-Ba, H. Hao, H. Yagoub & R. Vaillancourt, *One-step 4-stage Hermite–Birkhoff–Taylor DAE solver of order 12*, Can. Appl. Math. Q., soumis 2009.02.24.
10. H. Yagoub, T. Nguyen-Ba & R. Vaillancourt, *Variable-step variable-order 3-stage Hermite–Birkhoff–Obrechhoff DDE solver of order 4 to 14*, Appl. Math. Comput., soumis 2008.11.14, soumission corrigée 2009.01.24.
11. E. Kengne & R. Vaillancourt, *The structure of equilibrium solutions of diffusion equations with a nonlinear diffusion term*, IMA J. Appl. Math., soumis en avril 2008.
12. E. Kengne & R. Vaillancourt, *Wave propagation on nonlinear transmission lines: Dissipative effects*, J. of Mathematical Physics, soumis en avril 2008.
13. E. Kengne & R. Vaillancourt, *Stability of exact solutions of the cubic-quintic nonlinear Schrödinger equation with periodic potential*, J. Nonlinear Oscillations, soumis en janvier 2008.

Communications in refereed conference proceedings :

1. R. Ashino, A. Morimoto, M. Nagase, Yuichi Shimano & R. Vaillancourt, *Wavelet and block singular value image denoising*, in The Fourth International Conference on Information and the Fourth Irish Conference on the Mathematical Foundations of Computer Science and Information Technology 1st to th August 2006(Cork Ireland), Lei Li & Fuji Ren, éd., National University of Ireland, Cork, 2006, pp. 92–95.
2. A.A. Kolyshkin, R. Vaillancourt & I. Volodko, *Complex Ginzburg–Landau equation for suddenly blocked unsteady channel flow*, Proceedings of the 3rd IASME / WSEAS International Conference on Fluid Mechanics and Aerodynamics (FLUIDS '05), August 20-22, 2005, Corfu Island, Greece, (2005) ppp-qqq.
3. R. Ashino, A. Morimoto, M. Nagase & R. Vaillancourt, *Comparing multiresolution svd with other methods for image compression*, in Proc. Fourth ISAAC Congress (York University), H. Begehr, R. P. Gilbert, M. Muldoon & M. W. Wong, Eds., World Scientific, Singapore, 2005. 457–470.
4. T. Ratnarajah & R. Vaillancourt, *Quadratic forms on complex random matrices and channel capacity*, In Proc. IEEE International Conference on Acoustics, Speech, and Signal Processing, Montréal, Québec, **4**, pp. 385–388, May 17–21, 2004.

5. T. Ratnarajah & R. Vaillancourt, *Quadratic forms on complex random matrices and multi-antenna channel capacity*, In Proc. The Twelfth Annual Workshop on Adaptive Sensor Array Processing , MIT Lincoln Laboratory, Lexington, Massachusetts, 16-18 March 2004. To appear.
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9. R. Ashino, S. J. Desjardins, M. Nagase & R. Vaillancourt, *Microlocal filtering of images with Parseval wavelet frames*, Third International Workshop on Scientific Computing and Applications (Hong Kong, 2003), in Advances in Scientific Computing and Applications, Yayan Lu, Weiwei Sun and Tao Tang, eds., Science Press, Beijing, 2004, pp. 22–31.
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2. E. Kengne & R. Vaillancourt, *Modulational stability of solitary states in a lossy nonlinear electrical line*, **CRM-3282**, Centre de recherches mathématiques de l'Université de Montréal, 2009.
3. R. Ashino, T. Nguyen-Ba, & R. Vaillancourt, *Decoding low-dimensional linear codes by linear programming*, **CRM-3281**, Centre de recherches mathématiques de l'Université de Montréal, 2009.
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5. E. Kengne, C. Tagmon, T. Nguyen-Ba & R. Vaillancourt, *Higher order bright solitons and shock signals in nonlinear transmission lines*, **CRM-3275**, Centre de recherches mathématiques de l'Université de Montréal, 2008.
6. E. Kengne, R. Vaillancourt & B. A. Malomed, *Modulational instability and exact soliton and periodic solutions for two weakly coupled effectively 1D condensates trapped in a double-well potential*, **CRM-3274**, Centre de recherches mathématiques de l'Université de Montréal, 2008.
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11. T. Nguyen-Ba, H. Yagoub, Y. Zhuang & R. Vaillancourt, *Variable-step variable-order 2-stage Hermite-Birkhoff-Obrechhoff ODE Solver of order 3 to 14*, **CRM-3267**, Centre de recherches mathématiques de l'Université de Montréal, 9/2008.

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2. A.A. Kolyshkin, R. Vaillancourt & I. Volodko, *Complex Ginzburg-Landau equation for suddenly blocked unsteady channel flow* 3rd IASME / WSEAS International Conference on Fluid Mechanics and Aerodynamics (FLUIDS '05), August 20-22, 2005, Corfu Island, Greece.
3. R. Vaillancourt, *Detecting singularities with continuous wavelet transforms and application to leak detection*, Institute of Mathematical Sciences, University of Malaya, 22 October 2003. Dept. of Civil Engineering, Hong Kong University of Science and Technology, 5 nov. 2003 and Dept. of Information Technology, Chinese University of Hong Kong, 6 Nov. 2003.
4. R. Vaillancourt, *Microlocal analysis and image restoration*, Dept. of Mathematics, Hong Kong University of Science and Technology, 4 Nov. 2003.
5. R. Vaillancourt, *Pseudodifferential operators for microlocal analysis and image restoration*, Fourth ISAAC Congress, York University, Toronto, August 11–16, 2003.
6. R. Vaillancourt, *Comparing multiresolution SVD with other methods for image compression*, Fourth ISAAC Congress, York University, Toronto, August 11–16, 2003.
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8. X. Hua & R. Vaillancourt, *Revue de Constructive methods for linear and non-linear boundary value problems for analytic functions, Theory and applications* by V. V. Mityushev and S. V. Rogosin. In SIAM Review, **43**(2) (2001) 388–390.

Undergraduate courses and seminar since retirement :

Fall 1999	MAT 2331
Winter 2000	MAT 5326/4996
Spring 2000	MAT 2331, CSI 3550, CSI 3150
August 2000	60 hour seminar on signal processing and wavelets for Profs. Naoto Kumano-go from Tokyo and Xinhou Hua from Nanjing
Fall 2000	MAT 2731
Winter 2001	MAT 2331, CSI 3550
Winter 2001	Seminar on pseudodifferential operators, wavelets and signal and image processing
Spring 2001	CSI 3550
Winter 2002	CSI 3550, MAT 2331
Spring 2002	CSI 3150, MAT 3341
Winter 2003	MAT 2731, CSI 3550
Spring 2003	MAT 3341
Winter 2004	MAT 2731
Fall 2004	MAT 2331
Winter 2005	MAT 2731
Automne 2005	MAT 3720
Winter 2006	MAT 3380
Fall 2006	MAT 2784
Winter 2007	MAT 2784
Fall 2007	MAT 2784
Winter 2008	MAT 2784

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