Département : Mathématiques et statistique   **Date :** 2012.09.14
Université d'Ottawa.

CURRICULUM VITAE

a) Nom :   **No d'employé** : 10763

VAILLANCOURT Rémi, prof. aux., permanence 1974(?)
Membre du Département de mathématiques et de statistique
Membre de l'Inst. de mathématiques et de statistique d'Ottawa-Carleton
Membre de l'Inst. d'informatique d'Ottawa-Carleton
Membre de la Faculté des études supérieures et postdoctorales
courriel : remi@uottawa.ca
page d'accueil : www.site.uottawa.ca/~remi

b) Titres universitaires :

Ph.D.	Mathématiques	New York University	1969
M.Sc.	Mathématiques	Ottawa	1964
B.Sc.	Mathématiques	Ottawa	1961
B.A.	Philosophie	Ottawa	1957
M.Th.	Théologie	Ottawa	1965

c) Expérience :

1999–	Professeur auxiliaire,	Université d'Ottawa
1997–2003	Membre de l'ÉITI,	Université d'Ottawa
1994–	Professeur titulaire,	Université d'Ottawa
1973–94	Professeur agrégé,	Université d'Ottawa
1972–76	Directeur du dép. de math.,	Université d'Ottawa
1970–73	Professeur adjoint,	Université d'Ottawa
1969–70	Research Associate,	University of Chicago
1969	Research Assistant,	Courant Institute, NYU
1968	Instructor,	New York University
1965–69	Chargé de cours en congé d'études,	Université d'Ottawa
1959–61	Démonstrateur,	Université d'Ottawa

e) Travaux universitaires et professionnels :

2012	Examinateur de la thèse de maîtrise de Julien Sater, à l'Univ. Carleton,
2011	Rédacteur adjoint de Vestnik St. Petersburg University: Mathematics
2007	Rédacteur adjoint de Scientific J. of Riga Technical Univ. : Computer Science
2009	Rédacteur adjoint de Journal of Wavelet Transforms and Applications
2011	Examinateur externe de la thèse de Ph.D. de M.A. Qureshi à l'Univ. d'Auckland, Nouvelle Zélande.
2011	Examinateur de la thèse de Ph.D. de S. Al-Garni à l'Univ. Carleton,
2011	Examinateur de la thèse de Ph.D. de Y. Zhou à l'Univ. Carleton,
2010	Examinateur de la thèse de M.Sc. de Gaël Giordano à l'Univ. d'Ottawa,
2010	Président de la soutenance de thèse de Ph.D. (Chimie) de Katherine McGilvray
2010	Examinateur de la thèse de D.Sc. de R. K. Deka à l'Univ. Gauhati, Inde,
2009	Examinateur de la thèse de doctorat d'Olivier Rousseau,
2009	Examinateur de la thèse de maîtrise d'Alexandre Iolo,
2009	Examinateur de la thèse de maîtrise de Xiaobo Zhu, à l'Univ. Carleton,
2009	Examinateur de la thèse de doctorat d'Imad Chaddad, à l'Univ. Technique de Riga,
2007-	Rédacteur d'une section spéciale de *Cubo* **12**(3) (2010) 167–253,
2007-	Comité de rédaction de *J. of Wavelet Theory and Applications*,
2007	Examinateur de la thèse de doctorat d'Ilona Dzenite, à l'Univ. Technique de Riga,
2007	Évaluateur pour EPSRC Research Proposal, UK,
2006	Évaluateur pour EPSRC Research Proposal, UK,
2006	Arbitre pour *Comp. Math. Applic., Proc. AMS, International J. Computers & Math. with Applic., Applicable Analysis, Image and Vision Computing, Trans. on Internet Research.*
2005–	Comité de rédaction de *Scientific Proc. of Riga Technical University.*
2005	Examinateur de la thèse de M.Sc. (Sci. syst.) de Baozhu Liang, 2005.03.24.
2004	Évaluateur pour EPSRC Research Proposal, UK.
2004	Examinateur de la thèse de doctorat en techn. de l'information de Hussein A. Aly à Éiti, 2004.02.13.
2002–05	Assesseur externe de l'Institut de mathématiques de l'Université de Malaya.
2002–05	Examinateur externe du programme de mathématiques de 1er cycle de l'Université de Malaya.

f) Direction de travaux d'études supérieures :

Nombre total dirigé :	29 maîtrises,	12 doctorats
Nombre complété :	21 maîtrises,	7 doctorats
Nombre en cours :	1 maîtrise,	3 doctorats

Nom des étudiants présentement dirigés et année du début des études

- Abdulrahman Alzahrani, M.Sc. (Math.) janv. 2012-
- Abdulrahman Karouma, Ph.D. (Math.) janv. 2012-
- Huong Thu Nguyen, Ph.D. (Math.) sept. 2009–2012
- Han Hao, Ph.D. (Math.) sept. 2006–

Étudiants dirigés ou co-dirigés depuis 2006.

- Alex McLaren, Ph.D. (Math.) sept. 2006–2012
- Parviz Rasoulipour, Ph.D. (Math.) sept. 2008–, en suspend
- Hemza Yagoub, Ph.D. (Math.) mai 2009–abandon en sept. 2011
- Artur Przybylo, M.Sc. (Math.) sept. 2007–juin 2009
- Hemza Yagoub, M.Sc. (Math.) sept. 2007–mai 2009
- Melanie McKay, M.Sc. (Math.) sept. 2006–mars 2009
- Vladan Bozic, M.Sc. (Math.) sept. 2006–mai 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) mai 2006–2007
- Trichthenko, Alexandre, M.Sc. (Math) sept. 2006–abandon

g) **Cours supérieurs :** 2012: MAT6991 B directed studies (Topics on SSP RK and multistep time discretization) 2011: MAT6991 A directed studies (Conservation laws and SSP methods); 2010: MAT5187 Topics in applied mathematics (Numerical methods for ODEs); 2009: MAT5623 (équations différentielles algébriques); 2008: MAT5580 (calcul matriciel), MAT5991 T (équations diffrentielles avec retard); 2007: MAT 5187 (méthodes numériques pour équations différentielles); 2006: MAT 5187 (ondelettes pour appareils auditifs); 2003: CSI 5190;

h) **Subventions de recherche externes :**
Chercheur principal : Rémi VAILLANCOURT, sauf un cas ci-indiqué.

2007–12	CRSNG	24 000\$	Recherche numérique multidisciplinaire
2003–07	CRSNG	24 000\$	Recherche numérique multidisciplinaire
1999–03	CRSNG	12 075\$	Recherche numérique multidisciplinaire

Subventions de recherche internes :
Chercheur principal : Rémi VAILLANCOURT.

2008	octroi de dév.	8 000$	Ondelettes
2007	FESP	6 500$	Ét. doct.
2007	octroi de dév.	14 000$	Ondelettes
2006	octroi de dév.	12 133$	Ondelettes
2005	octroi de dév.	12 133$	Ondelettes
2004	octroi de dév.	12 000$	Ondelettes
2003	octroi de dév.	14 500$	Ondelettes

j) Publications :

1) Résumé indiquant un total pour la carrière entière :

- Livres rédigés par l'auteur : 8
- Livres édités ou édités et traduits par l'auteur : 3
- Chapitres de livres : 5
- Articles publiés dans des revues *avec comité de lecture* : 189
- Communications publiées dans les compte-rendus de congrès *avec comité de lecture* : 18
- Brevets : 1
- Rapports techniques : 127
- Résumés de communications et présentations : 33
- Revues pour *Mathematical Reviews* et *Zentralblatt* : 907

2) Description détaillée des publications pour les sept dernières années.

Livres écrits par l'auteur :

1. S.M. Bauer, S.B. Filippov, A.L. Smirnov, P.E. Tovstik & R. Vaillancourt *Asymptotic Methods in Mechanics of Solids*, International Series of Numerical Mathematics. Springer Basel, sous presse.

2. R. Ashino & R. Vaillancourt, *Hayawakari Matlab (Matlab Compendium)*, 2e éd. refondue, 2e tirage, Kyoritsu Shuppan, Tokyo, 2010, 227 pages. (En japonais). [Il y eut au moins 11 tirages de la 1ère éd.]

Livres édités par l'auteur :

1. A. Guran, D. J. Steigmanm, 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.

Chapitres de livres :

1. Xinhou Hua & R. Vaillancourt, *Dynamics of permutable maps.* in Early Days in Complex Dynamics, AMS Dec. 2011, pp. 307–322,

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. Haseganu, Series on Stability, Vibration and Control of Systems, Series B, Vol. 15, World Scientific, Singapore, 2006, pp. 139–150.

Articles publiés dans des revues *avec comité de lecture* :

1. M. A. Hajji & R. Vaillancourt, *Representation of differential operators in 2D nonseparable wavelet bases* Can. Appl. Math. Q., sous presse.

2. M. Bahri, R. Ashino & R. Vaillancourt, *Continuous quaternion Fourier and wavelet transforms*, Int. J. Wavelets Multiresolut. Inf. Process, World Scientific Publishing Company, sous presse,

3. R. Ashino & R. Vaillancourt, *Phase transitions in error correcting and compressed sensing by ℓ_1 linear programming*, Int. J. Wavelets Multiresolut. Inf. Process, World Scientific Publishing Company, sous presse.

4. E. Kengne, A. Lakhssassi, W. M. Liu & R. Vaillancourt, *Phase engineering, modulational instability, and solitons of Gross–Pitaevskii-type equations in 1+1 dimensions*, Phys. Rev. E, sous presse.

5. H. Hao & R. Vaillancourt, *Traveling wave solutions of integro-differential equations of one-dimensional neuronal networks*, Acta Mathematicae Applicatae Sinica, English Series, sous presse.

6. E. Kengne, A. Lakhssassi, R. Vaillancourt & W. M. Liu, *Exact solutions for generalized variable-coefficients Ginzburg–Landau equation: Application to Bose–Einstein condensates with multi-body interatomic interactions*, J. Math. Phys., **53** (2012) 123703(1–28). doi: 10.1063/1.4768460.

7. M. Bahri, R. Ashino & R. Vaillancourt, *Convolution theorems for quaternion Fourier transform and applications*, Complex Variables and Elliptic Equations, (2012) sous presse.

8. T. Nguyen-Ba, H. Nguyen-Thu, T. Giordano and R. Vaillancourt, *Strong-stability-preserving, 6-stage, Hermite–Birkhoff time-discretization methods of order 4 to 12*, Automation Computers Applied Mathematics, **21**(1) (2012) 5–28.

9. E. Kengne, A. Lakhssassi & R. Vaillancourt, *Temperature distribution in living biological tissue simultaneously subjected to oscillatory surface and spatial heating: analytical and numerical analysis*, Intern. Math. Forum, **7**(49) (2012) 2373–2392.

10. E. Kengne, A. Lakhssassi, R. Vaillancourt & W. M. Liu, *Monitoring of temperature distribution in living biological tissues via blood perfusion*, Eur. Phys. J. Plus, **127**(89) (2012) 1–15. DOI 10.1140/epjp/i2012-12089-7.

11. E. Kengne, A. Lakhssassi, T. Nguyen-Ba & R. Vaillancourt, *Temperature distributions for regional hypothermia based on nonlinear bioheat equation of Pennes type: dermis and subcutaneous tissues*, Appl. Math., **3** (2012) 217–224. doi:10.4236/am.2012.33035 pub. élec. mars 2012 (http://www.SciRP.org/journal/am).

12. T. Nguyen-Ba, A. Karouma, T. Giordano & R. Vaillancourt, *Strong-stability-preserving, One-step, 9-stage, Hermite–Birkhoff–Taylor, Time-discretization Methods Combining Taylor and RK4 Methods*, Scientific Proceedings of Riga Technical University, **55**(54) (2012), sous presse.

13. T. Nguyen-Ba, H. Nguyen-Thu, T. Giordano & R. Vaillancourt, *Strong-stability-preserving Hermite–Birkhoff Time-discretization Methods Combining k-step Methods and Explicit s-stage RK4 Methods*, Scientific Proceedings of Riga Technical University, **55**(54) (2012), sous presse.

14. T. Nguyen-Ba, H. Nguyen-Thu, T. Giordano & R. Vaillancourt, *Strong-stability-preserving 7-stage Hermite–Birkhoff time-discretization methods* J. Sci. Comput., **50**(1) (2012) 63–90. DOI 10.1007/s10915-011-9473-7.

15. T. Nguyen-Ba, H. Nguyen-Thu & R. Vaillancourt, *Strong-stability-preserving, k-step, 4- to 10-stage, Hermite–Birkhoff time-discretizations of order 11*, Automation Computers Applied Mathematics, **20**(1) (2011) 47–68.

16. T. Nguyen-Ba, H. Nguyen-Thu & R. Vaillancourt, *Strong-stability-preserving, k-step, 5- to 10-stage, Hermite–Birkhoff time-discretizations of order 12*, Amer. J. Comput. Math., **1** (2011) 72–82. doi:10.4236/ajcm.2011.12008 pub. élec. juin 2011 (http://www.scirp.org/journal/ajcm).

17. M. Bahri, R. Ashino & R. Vaillancourt, *Two-dimensional quaternion wavelet transform*, Appl. Math. Comput., **218** (2011) 1–21. doi: 10.1016/j.amc.2011.05.030.

18. T. Nguyen-Ba, H. Nguyen-Thu, T. Giordano & R. Vaillancourt, *Strong-stability-preserving 4-stage Hermite–Birkhoff time-discretization methods*, Can. Appl. Math. Q., **19**(1) (2011) 79–110.

19. H. Yagoub, T. Nguyen-Ba & R. Vaillancourt, *Variable-step variable-order 3-stage Hermite–Birkhoff–Obrechkoff DDE solver of order 4 to 14*, Appl. Math. Comput., **217** (2011) 10247–10255. doi:10.1016/j.amc.2011.05.023

20. T. Nguyen-Ba, H. Yagoub, H. Hao & R. Vaillancourt, *Pryce pre-analysis adapted to some DAE solvers*, Appl. Math. Comput., **217** (2011) 8403–8418. doi:10.1016/j.amc.2011.03.037.

21. X. Wang, X. Hua & R. Vaillancourt, *Permutable functions concerning differential equations II*, Complex Variables and Elliptic Equations, **56**(1–4) (2011) 155–170. DOI: 10.1080/17476930903394853.

22. 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., **35** (2011) 363–378. DOI: 10.1007/s12190-009-0362-2, pub. élec. 2009.12.01.

23. E. Kengne & R. Vaillancourt, *Stability of exact solutions of the cubic-quintic nonlinear Schrödinger equation with periodic potential*, Nonlinear Oscillations, **13**(4) (2011) 569–583. (Original ukrainien **13**(4), (octobre-décembre 2010) 533–545).

24. T. Nguyen-Ba, H. Nguyen-Thu, T. Giordano & R. Vaillancourt, *Strong stability preserving 3-stage Hermite–Birkhoff time-discretization methods* Appl. Num. Math., **61**(4) (2011), 487–500. doi: 10.1016/j.apnum.2010.11.013.

25. R. Ashino & R. Vaillancourt, *Mean breakdown points for compressed sensing by uniformly distributed matrices*, JSIAM Letters, **2** (2010) 111–114.

26. 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*, Scientific Proceedings of Riga Technical University, **45**(52), (2010) 87–94.

27. M. Bahri, E.S.M. Hitzer, R. Ashino & R. Vaillancourt, *Windowed Fourier transform of two-dimensional quaternionic signals*, Appl. Math. Comput., **216** (2010), 2366-2379. doi: 10.1016/j.amc.2010.03.082.

28. V. Bozic, T. Nguyen-Ba & R. Vaillancourt, *A three-stage, VSVO, Hermite–Birkhoff–Taylor, ODE solver*, Appl. Math. Comput., **216** (2010) 598–610. doi:10.1016/j.amc.2010.01.082.

29. E. Kengne, A. Kakhssassi, T. Nguyen-Ba & R. Vaillancourt, *Dispersive shock waves propagating in the cubic-quintic derivative NLS equation*, Can. J. Phys./Rev. Can. Phys., **88**(1) (2010), 55–66.

30. 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, **24**(14) (2010) 2211–2227. DOI: 10.1142/S021797921005541X

31. T. Nguyen-Ba, V. Bozic, E. Kengne & R. Vaillancourt, *A one-step 7-stage Hermite–Birkhoff–Taylor ODE solver of order 11*, J. Comput. Appl. Math., **234** (2010) 192–208. doi:10.1016/j.cam.2009.12.015.

32. R. Ashino, T. Nguyen-Ba & R. Vaillancourt, *Linear codes and compressed sensing with equivalent average breakdown points*, Scientific Proceedings of Riga Technical University, **41**(51), (2009), 91–96.

33. T. Nguyen-Ba, H. Nguyen-Thu & R. Vaillancourt, *Strong stability preserving 5-stage Hermite–Birkhoff time-discretization methods*, Scientific Proceedings of Riga Technical University, **41**(51) (2009) 67–90.

34. T. Nguyen-Ba, H. Nguyen-Thu & R. Vaillancourt, *Solution of electric circuits by a 9-stage Hermite–Birkhoff–Taylor DAE solver of order 10*, Scientific Proceedings of Riga Technical University, **41**(51) (2009) 97–108.

35. 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., **35** (2011) 363-378. DOI: 10.1007/s12190-009-0362-2, pub. élec. 2009.12.01.

36. R. Ashino, T. Nguyen-Ba & R. Vaillancourt, *Low-dimensional linear codes with high breakdown points by QR decomposition*, Int. J. Pure Appl. Math., **57**(2) (2009) 151–163.

37. A. Madrane & R. Vaillancourt, *Three-dimensional adaptive central schemes on unstructured staggered grids*, SIAM J. Sci. Computing, **31**(5) (2009) 3979–3999.

38. T. Nguyen-Ba, V. Bozic, E. Kengne & R. Vaillancourt, *Nine-stage multiderivative Runge–Kutta method of order 12*, Publications de l'Institut Mathématique, Nouvelle série, **86**(100) (2009) 75–96.

39. E. Kengne, C. Tadmon, T. Nguyen-Ba & R. Vaillancourt, *Higher order bright solitons and shock signals in nonlinear transmission lines*, Chinese J. Phys, **47**(5) (October 2009) 713–718.

40. 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) 49–66.

41. 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.

42. 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, **20**(9) (sept. 2009) 701–721.

43. E. Kengne, C. Tadmon & R. Vaillancourt, *On the dissipative complex Ginzburg–Landau equation governing the propagation of solitary pulse in dissipative nonlinear transmission lines*, Chinese J. of Physics, **47**(1) (fév. 2009) 81–92.

44. 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.

45. 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., **31**(1) (2009) 335–358. DOI 10.1007/s12190-008-0216-3.

46. E. Kengne & R. Vaillancourt, *Propagation of solitary waves on lossy nonlinear transmission lines*, International J. of Modern Physics B, **23**(23) (2009) 1–18.

47. E. Kengne & R. Vaillancourt, *Transmission of solitary pulse in dissipative nonlinear transmission lines*, Commun. Nonlinear Sci. Numer. Simulat., **14**(11) (2009) 3804–3810. doi:10.1016/j.cnsns.2008.08.016.

48. 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.

49. 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., **16**(4) (2008) 415–438.

50. R. Ashino, T. Nguyen-Ba & R. Vaillancourt, *Decoding low-dimensional linear codes by linear programming*, Can. Appl. Math. Q., **16**(3) (2008) 241–254.

51. 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.

52. 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.

53. T. Nguyen-Ba, H. Yagoub, Y. Zhuang & R. Vaillancourt, *Variable-step variable-order 2-stage Hermite–Birkhoff–Obrechkoff ODE solver of order 3 to 14*, Scientific Proceedings of Riga Technical University, **37**(50) (2008) 79–102.

54. 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.

55. 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.

56. 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).

57. 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.

58. 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.

59. T. Nguyen-Ba, V. Bozic & R. Vaillancourt, *One-step 7-stage Hermite–Birkhoff–Taylor ODE solver of order 13*, Int. J. Pure Appl. Math., **43**(4) (2008) 569–592.

60. T. Nguyen-Ba, P. W. Sharp & R. Vaillancourt, *Hermite-Birkhoff-Obrechkoff 4-stage 4-step ODE solver of order 14 with quantized stepsize*, J. of Computational and App. Math., **222**(2) (2008) 608–621.

61. X.-H. Hua & R. Vaillancourt, *Prime factorization of entire functions*, Cubo, **10**(1) (2008) 1–10.

62. T. Nguyen-Ba, P.. W. Sharp, H. Yagoub & R. Vaillancourt, *Hermite-Birkhoff-Obrechkoff 3-stage 4-step ODE solver of order 14 with quantized stepsize*, Can. Appl. Math. Q., **15**(2) (2007) 181–201

63. R. Vaillancourt & V. G. Zakharov, *Interval wavelets adapted to monomial differential operators*, J. of Wavelet Theory and Applications, **1**(1) (2007) 31–63.

64. T. Nguyen-Ba, P. W. Sharp, H. Yagoub, & R. Vaillancourt, *Hermite–Birkhoff–Obrechkoff 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.

65. 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.

66. 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.

67. E. Kengne & R. Vaillancourt, *On exact solutions of the Gross–Pitaevskii equation in periodic potential in the presence of external source*, J. Mathematical Physics, **48** (2007) 073520-1–13.

68. X.-H. Hua, R. Vaillancourt & X. L. Wang, *Permutable functions concerning differential equations*, J. Aust. Math. Soc., **83** (2007) 369–384.

69. T. Nguyen-Ba, H. Yagoub, Y. Zhang & R. Vaillancourt, *Variable-step variable-order 3-stage Hermite–Birkhoff–Obrechkoff ODE solver of order 4 to 14*, Can. Appl. Math. Q., **14**(4) (Winter 2006) 413–437.

70. R. Vaillancourt, R. & V. G. Zakharov, *Biorthogonal wavelet bases for solving time-dependent PDEs*, Scientific Proceedings of Riga Technical University, Boundary Field Problems and Computer Simulation, **29**(48) (2006) 25–52.

71. T. Nguyen-Ba, H. Yagoub, S. J. Desjardins & R. Vaillancourt, *Variable-step variable-order 4-stage Hermite–Birkhoff–Obrechkoff ODE solver of order 5 to 14*, Scientific Proceedings of Riga Technical University, Boundary Field Problems and Computer Simulation, **29**(48) (2006) 53–80.

72. M. A. Hajji & R. Vaillancourt, *Matrix derivation of Gaussian quadratures*, Scientific Proceedings of Riga Technical University, Boundary Field Problems and Computer Simulation, **29**(48), (2006) 198–213.

73. E. Kengne & R. Vaillancourt, *Stabilized soliton in attractive Bose-Einstein condensate in hyperbolic potential*, Scientific Proceedings of Riga Technical University, Boundary Field Problems and Computer Simulation, **29**(48) (2006) 81–94.

74. 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.

75. 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.

76. T. Nguyen-Ba & R. Vaillancourt, *Hermite–Birkhoff–Obrechkoff 3-stage 6-step ODE solver of order 14*, Can. Appl. Math. Q., **13**(2) (Summer 2005) 151–181.

77. A. Morimoto, R. Ashino & R. Vaillancourt, *Multiwavelet neural network preprocessing of irregularly sampled data*, Scientiae Mathematicae Japonicae, (e-2006) 301–317.

78. 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.

79. 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.

80. P. W. Sharp & R. Vaillancourt, *Explicit Pouzet Runge–Kutta pairs for Voltera integro-differential equation*, Scientific Proceedings of Riga Technical University, **29**, Boundary Field Problems and Computer Simulation, 48th issue, (2006) 95–104.

81. T. Ratnarajah & R. Vaillancourt, *Complex singular Wishart matrices and applications*, Computers Math. Applic., **50** (2005) 399–411.

82. 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.

83. 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.

84. E. F. Pelletier & R. Vaillancourt, *Modelling instgrument's sounds using Malvar wavelets*, Scientific Proceedings of Riga Technical University, **26**, Boundary Field Problems and Computer Simulation, 47th issue, (2005) 18–24.

85. 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.

86. 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.

87. 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.

88. 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.

89. 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.

90. T. Ratnarajah, R. Vaillancourt & M. Alvo, *Complex random matrices and Rician channel capacity*, Problems of Information Transmission. **41**(1) (Jan.-March 2005) 1–21.

91. 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.

92. T. Ratnarajah, R. Vaillancourt & M. Alvo, *Eigenvalues and condition numbers of complex random matrices*, SIAM J. Matrix Anal. Appl. **26**(2) (2005) 441–456.

Articles soumis à des revues *avec comité de lecture* :

1. M. Bahri, R. Ashino & R. Vaillancourt, *Convolution theorems for Clifford Fourier transform and properties*, Advances in Applied Clifford Algebras. soumis le 24 nov. 2012.

   T. Nguyen-Ba, **A. Karouma**, T. Giordano & R. Vaillancourt, *Strong-stability-preserving, one-step, 10-stage, Hermite–Birkhoff–Taylor, time-discretization methods combining Taylor and RK5 Methods*, J. Scient. Comput., soumis le 30 mars 2012.

2. **T. Nguyen-Ba**, **A. Karouma** & R. Vaillancourt, *Strong-stability-preserving one-step 10-stage Hermite–Birkhoff–Taylor time-discretization methods combining Taylor and RK4 methods*, Can. Appl. Math. Q., soumis 19 mars 2012.

3. **T. Nguyen-Ba**, **H. Nguyen-Thu** & R. Vaillancourt, *Strong-stability-preserving 6-stage Hermite–Birkhoff time-discretization methods of order 4 to 12*, Autom. Comput. Appl. Math., soumis 2012.03.11.

Communications publiées dans les compte-rendus de congrès *avec comité de lecture* :

1. M. Bahri, R. Ashino & R. Vaillancourt, *Two-dimensional quaternion Fourier transform of type II and quaternion wavelet transform*, in Proc. of the 2012 Intern. Conf. on Wavelet Analysis and Pattern Recognition, Xian, China, 15–17 July 2012, pp, 359–364.

2. **T. Nguyen-Ba**, **H. Nguyen-Thu** & R. Vaillancourt, *Strong-stability-preserving Hermite–Birkhoff time-discretizations of order 4 to 12*, International Conference on Applied Mathematics, Modeling and Computational Science - Waterloo, Ontario, Canada, 25 Jul 2011 - 29 Jul 2011, AIP Conference Proceedings, **1368** 275–278, (2011)

3. **T. Nguyen-Ba**, **H. Yagoub** & R. Vaillancourt, *Pryce structural analysis adapted to Hermite–Birkhoff–Taylor DAE solvers* International Conference on Applied Mathematics, Modeling and Computational Science - Waterloo, Ontario, Canada, 25 Jul 2011 - 29 Jul 2011, AIP Conference Proceedings, **1368** 283–286, (2011).

4. A. A. Kolyshkin & R. Vaillancourt. *Linear stability of a convective flow in a vertical pipe*, In: Recent research in applied mathematics, Proceedings of the 15th WSEAS International Conference on Applied Mathematics, Vouliagmeni, Athens, Greece, December 29–31, (2010) 44–48.

5. R. Ashino & R. Vaillancourt, *Equivalent mean breakdown points for linear codes and compressed sensing by ℓ_1 optimization*, 10th International Symposium on Communications and Information Technologies 2010 (ISCIT 2010), October 26–29, 2010, Meiji University, Tokyo, Japan.

6. R. Ashino, **T. Nguyen-Ba** & R. Vaillancourt, *Decoding linear codes by linear programming*, in The Fifth International Conference on Information, November 6 - 9, 2009, Kyoto University Clock Tower Centennial Hall, Kyoto, Japan, Hosted by International Information Institute, Tokyo, Japan, Sponsored by Chinese Academy of Science and Engineering in Japan, (2009) 192–195.

7. 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 Comcputer 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.

8. 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.

9. 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, éd., World Scientific, Singapore, 2005. 457–470.

Rapports techniques

1. R. Ashino & R. Vaillancourt, *Equivalent mean breakdown points for linear codes and compressed sensing by ℓ_1 optimization*, **CRM–XXXX**, *Centre de recherches mathématiques de l'Université de Montréal*, 2010.

2. R. Ashino & R. Vaillancourt, *Mean breakdown points for compressed sensing by uniformly distributed matrices*, **CRM–XXXX**, *Centre de recherches mathématiques de l'Université de Montréal*, 2010.

3. T. Nguyen-Ba, T. Bozic, E. Kengne & R. Vaillancourt, *Nine-stage multi-derivative Runge–Kutta method of order 12*, **CRM–3293**, *Centre de recherches mathématiques de l'Université de Montréal*, 2009.

4. A. Madrane & R. Vaillancourt, *Three-dimensional adaptive central schemes on unstructured staggered grids*, **CRM–3291**, *Centre de recherches mathématiques de l'Université de Montréal*, 2009.

5. 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*, **CRM–3283**, *Centre de recherches mathématiques de l'Université de Montréal*, 2009.

6. 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.

7. 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.

8. T. Nguyen-Ba, H. Hao, H. Yagoub, & R. Vaillancourt, *One-step 5-stage Hermite–Birkhoff–Taylor ODE solver of order 12*, **CRM–3278**, *Centre de recherches mathématiques de l'Université de Montréal*, 2008.

9. 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.

10. 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.

11. T. Nguyen-Ba, H. Hao, H. Yagoub, & R. Vaillancourt, *One-step 9-stage Hermite–Birkhoff–Taylor DAE solver of order 11*, **CRM–3273**, *Centre de recherches mathématiques de l'Université de Montréal*, 9/2008.

12. H. Yagoub, T. Nguyen-Ba & R. Vaillancourt, *Variable-step 7-stage Hermite–Birkhoff–Taylor DDE solver of order 8*, **CRM–3270**, *Centre de recherches mathématiques de l'Université de Montréal*, 2008.

13. T. Nguyen-Ba, V. Bozic, E. Kengne & R. Vaillancourt, *One-step 9-stage Hermite–Birkhoff–Taylor ODE solver of order 10*, **CRM–3269**, *Centre de recherches mathématiques de l'Université de Montréal*, 2008.

14. E. Kengne, R. Vaillancourt & B. A. Malomed, *Bose-Einstein condensates in optical lattices: The cubic-quintic nonlinear Schrödinger equation with a periodic potential*, **CRM–3268**, *Centre de recherches mathématiques de l'Université de Montréal*, 2008.

15. T. Nguyen-Ba, H. Yagoub, Y. Zhuang & R. Vaillancourt, *Variable-step variable-order 2-stage Hermite–Birkhoff–Obrechkoff ODE Solver of order 3 to 14*, **CRM–3267**, *Centre de recherches mathématiques de l'Université de Montréal*, 9/2008.

16. E. Kengne & R. Vaillancourt, *Integrability conditions for two-component Bose-Einstein condensates in periodic potentials*, **CRM–3265**, *Centre de recherches mathématiques de l'Université de Montréal*, 8/2008.

17. E. Kengne & R. Vaillancourt, *Transmission of solitary pulse in dissipative nonlinear transmission lines*, **CRM–3264**, *Centre de recherches mathématiques de l'Université de Montréal*, 8/2008.

18. E. Kengne & R. Vaillancourt, *Modulational stability of solitary states in a lossy nonlinear electrical line*, **CRM–3255**, *Centre de recherches mathématiques de l'Université de Montréal*, 9/2007.

19. E. Kengne & R. Vaillancourt, *Modulational stability of solitary states in a lossy nonlinear electrical line*, **CRM–3255**, *Centre de recherches mathématiques de l'Université de Montréal*, 9/2007.

20. E. Kengne & R. Vaillancourt, *Exact solutions of the Gross–Pitaevskii equation in periodic potential in the presence of external source*, **CRM–3254**, *ibid.*, 2006.

21. T. Nguyen-Ba, P. W. Sharp, H. Yagoub & R. Vaillancourt, *Hermite-Birkhoff-Obrechkoff 5-stage 4-step ODE solver of order 15 witrh quantized stepsize*, **CRM–3253**, *ibid.*, 2007.

22. T. Nguyen-Ba, V. Bozic, E. Kengne & R. Vaillancourt, *One-step 4-stage Hermite–Birkhoff–Taylor ODE solver of order 14*, **CRM–3251**, *ibid.*, 2007.

23. E. Kengne & R. Vaillancourt, *Ginzburg–Landau system of complex modulation equations for distributed nonlinear dissipative transmission lines*, **CRM–3247**, *ibid.*, 2007.

24. P. W. Sharp & R. Vaillancourt, *New Nyström pairs for the general second-order problem*, **CRM–3235**, *ibid.*, 05/2006.

25. P. W. Sharp & R. Vaillancourt, *Explicit Pouzet Runge–Kutta paris for Voltera integro-differential equations*, **CRM–3234**, *ibid.*, 05/2006.

26. Nguyen-Ba, T., Yagoub, H., Zhang, Y. & Vaillancourt, *Variable-step variable-order 3-stage Hermite–Birkhoff–Obrechkoff ODE solver of order 4 to 14*, **CRM–3232**, *ibid.*, 11/2006.

27. Vaillancourt, R. & Zakharov, V. G *Biorthogonal wavelet bases for solving time-dependent PDEs*, **CRM–3231**, *ibid.*, 11/2006.

28. Nguyen-Ba, T., Yagoub, H., Desjardins, S. J. & Vaillancourt, *Variable-step variable-order 4-stage Hermite-Birkhoff–Obrechkoff ODE solver of order 5 to 14*, **CRM–3227**, *ibid.*, 09/2006.

29. M. A. Hajji & R. Vaillancourt, *Matrix derivation of Gaussian quadratures*, **CRM–3221**, *ibid.*, 09/2006.

30. Nguyen-Ba, T., Yagoub, H., Li, Y. & Vaillancourt, R., *Variable-step variable-order 3-stage Hermite–Birkhoff ODE solver of order 5 to 15*, **CRM–3220**, *ibid.*, 08/2006.

31. E. Kengne & R. Vaillancourt, *Stabilized soliton in attractive Bose–Einstein condensate in hyperbolic potential*, **CRM–3219**, *ibid.*, 08/2006.

32. T. Nguyen-Ba & R. Vaillancourt, *Hermite–Birkhoff–Obrechkoff 3-stage 6-step ODE solver of order 14*, **CRM–3214**, *ibid.*, 4/2006.

33. A. Morimoto, R. Ashino & R. Vaillancourt, *Multiwavelet neural network pre-processing*, **CRM–3213**, *ibid.*, 3/2006.

34. A.A. Kolyshkin, R. Vaillancourt & I. Volodko, *Approximate method for the calculation of the change in impedance due to a flaw in a conduction cylindrical layer*, **CRM–3212**, *ibid.*, 1/2006.

35. X. Hua & R. Vaillancourt, *Prime factorization of entire functions*, **CRM–3211**, *ibid.*, 01/2006.

36. A. Madrane, A. El Boukili & R. Vaillancourt, *A new overlapping unstructured grid algorithm*, **CRM–3203**, *ibid.*, 10/2005.

37. A. Morimoto, Y. Shimano, R. Ashino & R. Vaillancourt, *Wavelet and block singular value image denoising*, **CRM–3202**, *ibid.*, 10/2005.

38. A. A. Kolyshkin, R. Vaillancourt & I. Volodko, *Weakly nonlinear analysis of rapidly decelerated channel flow*, **CRM–3198a**, *ibid.*, 09/2005.

39. A. A. Kolyshkin, R. Vaillancourt & I. Volodko, *Complex Ginzburg–Landau equation for suddenly blocked unsteady channel*, **CRM–3194**, *ibid.*, 08/2005.

40. P. W. Sharp & R. Vaillancourt, *Efficient order-five second-derivative explicit Runge–Kutta pairs with interpolants*, **CRM–3193**, *ibid.*, 08/2005.

41. P. W. Sharp & R. Vaillancourt, *Error growth of some symplectic explicit Rung–Kutta Nyström methods for a simulation of the gas giants*, **CRM–3192**, *ibid.*, 08/2005.

42. E. F. Pelletier & R. Vaillancourt, *Modelling instrument's sounds using Malvar wavelets*, **CRM–3191**, *ibid.*, 08/2005.

43. X. Hua & R. Vaillancourt, *Dynamics of permutable meromorphic functions*, **CRM–3190**, *ibid.*, 08/2005.

44. T. Ratnarajah & R. Vaillancourt, *Complex singular Wishart matrices and applications*, **CRM–3185**, *ibid.*, 05/2005.

45. M. Yoshikawa, Y. Gong, R. Ashino & R. Vaillancourt, *Case study on SVD multiresolution analysis*, **CRM–3179**, *ibid.*, 01/2005.

46. M. S. Ghidaoui, A. A. Kolyshkin & R. Vaillancourt, *Transient turbulent flow in a pipe*, **CRM–3176**, *ibid.*, 01/2005.

Résumés de communications et présentations

1. R. Ashino, A. Morimoto, M. Nagase, W. Qi & R. Vaillancourt, *Image processing using singular value decomposition and wavelet*, Seminar Notes of Mathematical Sciences, April 2006, Ibaraki University, Mito Ibaraki, 310-8152, Japan, **9** (2006) 1–16.

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.

DATE : 2010.10.27