Curriculum Vitae

Personal

Name	Anastasios G. Tongas
Address	Department of Mathematics, University of Patras
	265 00, Patras, Greece
e-mail	tasos@math.upatras.gr
http	Anastasios G. Tongas home page
Telephone	+30 2610 996757

Education

2001 PhD, University of Patras, Department of Mathematics, Advisor: Dimitri Tsoubelis.

1991 B.S in Mathematics, University of Patras, Department of Mathematics

Employment History

2014-pres. Lecturer, Department of Mathematics, University of Patras.

2011-2013 Visiting Assistant Professor, Dept. of Mathematics and Statistics, Un. of Cyprus.

2008-2010 Visiting Assistant Professor, Dept of Applied Mathematics and Mathematics, Un. of Crete.

2004-2007 Postdoctoral Fellow, Dept. of Mathematics, Un. of Patras.

2002-2004 Marie Curie Fellow, postdoctoral Fellow, Un. of Leeds, UK, Dept. of Applied Mathematics.

Fellowships

2009 Invited Research Fellow, *Isaac Newton Institute for Mathematical Sciences, Cambridge,* for the research programme Discrete Integrable Systems.

2002–2004 Marie Curie individual postdoctoral Fellowship, Department of Applied Mathematics, University of Leeds, UK.

1992–1997 Post-graduate fellowship (EMY), Section of Applied Analysis, Dept of Mathematics Un. of Patras.

1995 Erasmus Fellow, Dept. of Applied Mathematics, University of Leeds, UK.

Research - Teaching Experience

2014-pres. Lecturer, Department of Mathematics University of Patras.
I teach the undergraduate courses "Partial Differential Equations", "Special theory of Relativity", "Fourier Transform, distributions and applications", and the service courses "Mathematics" and "Mathematics II" at the Dept. of Biology and Geology, respectively. I teach the postgraduate course "General theory of Relativity" at Dept. of Mathematics.

2011 - 2013 Visiting Assistant Professor, Dept. of Mathematics and Statistics, Un. of Cyprus.
I taught the undergraduate service courses "Calculus I" and "Calculus II", "Mathematics I" and "Mathematics II", "Introduction to Probability and Statistics", "Ordinary Differential Equations", "Mathematics with symbolic computation programmes".

2008 - 2010 Visiting Assistant Professor, Dept of Applied Mathematics and Mathematics, Un. of Crete.
I taught the undergraduate courses, "Methods of Applied Mathematics I", "Algebra", "Linear Algebra II", "Applied Algebra".

2004 - 2007 Postdoctoral Fellow, Dept. of Mathematics, Un. of Patras.
I worked for the research programme Pythagoras I, No. B-365-015, ΕΠΕΑΕΚ ΙΙ. with title "Generating Equations of Integrable Systems and Reductions."

2002 - 2004 Marie Curie Postdoctoral Fellow, Department of Applied Mathematics, Univ. of Leeds, UK,
I worked for the research programme with Contract No HPMF-CT-2002-01639, funded by the individual postdoctoral fellowships *Marie Curie.*
Tutor for the undergraduate courses "Calculus, ordinary differential equations and functions of several variables" and "Applications of Mathematics".

1996–2001 Post-graduate researcher Dept. of Mathematics Un. of Patras, funded by GGET ΠΕΝΕΔ95, No. 1328 and the research programme of Un. of Patras "Carathéodory", No. 1938.

Computer Skills

Algebraic Computing: Mathematica, Maple, Matlab, Reduce.
Languages: HTML, LaTeX.
Operating Systems: Unix (Apollo HP), Linux.

Publications

Peer-Reviewed

A 1 A. Tongas, D. Tsoubelis and P. Xenitidis, Integrability aspects of a Schwarzian PDE. *Phys. Lett. A.* **284**, 266-274, (2001).

A 2 A. Tongas, D. Tsoubelis and P. Xenitidis, A family of integrable nonlinear equations of hyperbolic type. *J. Math. Phys.* **42**, 5762-5784, (2001).

A 3 A. Tongas and F. Nijhoff, Generalized hyperbolic Ernst equations for an Einstein–Maxwell–Weyl field. *J. Phys. A: Math. Gen.* **38**, 895-906, (2005).

A 4 A. Tongas and F. Nijhoff, The Boussinesq integrable system: Compatible lattice and continuum structures. *Glasgow Math. J.* **47A**, 205–219, (2005).

A 5 A. Tongas and F. Nijhoff, A discrete Garnier type system from symmetry reduction on the lattice. *J. Phys. A: Math. Gen.* **39**, 12191–12202, (2006).

A 6 V. G. Papageorgiou, A. G. Tongas and A. P. Veselov, Yang-Baxter maps and symmetries of integrable equations on quad-graphs. *J. Math. Phys.* **47**, 083502, (2006).

A 7 V. G. Papageorgiou and A. G. Tongas. Yang-Baxter maps and multi–field integrable lattice equations. *J. Phys. A: Math. Theor.* **40**, 12677-12690, (2007).

A 8 A. Tongas, D. Tsoubelis and P. Xenitidis. Affine linear and D_4 symmetric lattice equations: Symmetry analysis and reductions. *J. Phys. A: Math. Theor.* **40**, 13353-13384, (2007).

A 9 V.G. Papageorgiou, Yu.B. Suris, A.G. Tongas and A.P. Veselov, On quadrirational Yang-Baxter maps, *SIGMA* **6**, 033, 9 pages (2010).

In Conference Proceedings with referees

B 1 A. Tongas, D. Tsoubelis and V. Papageorgiou, Symmetries and group invariant reductions of integrable partial difference equations, N. H. Ibragimov, C. Sophocleous and P. A. Damianou eds, Proceedings of the 10th International Conference in Modern Group Analysis (Larnaca, 2004), pp. 222-230.

B 2 A. Tongas, On the symmetries of integrable partial difference equations. Proceedings of the International Conference on Difference Equations, Special Functions and Orthogonal Polynomials, Munich, July 2005, S Elaydi, J Cushing, R, Lasser, V Papageorgiou, A Ruffing and W Van Assche eds, World Scientific 2007, pp. 654–663.

Hellenic Conferences with international participation

B 3 A. Tongas, Geometrical Aspects of an Integrable Nonlinear Equation of the Schwarzian Type. K. Kokkotas and N. Stergioulas eds, Proceedings of the 10th Hellenic Relativity conference "Recent Developments in Gravity", Kalithea, Chalkidiki, May 2002, World Scientific 2003 pp. 150–154.

B 4 A. Tongas, Generalized Ernst equations for plane symmetric space-times and compatible lattice structures, 11th Conference on Recent Developments in Gravity 2-5 June 2004, Lesbos, Greece, *Journal of Physics: Conference Series*, vol. **8**, 2005.

Preprints

Γ 1 V. G. Papageorgiou and A. G. Tongas, Yang-Baxter maps associated to elliptic curves, arXiv:0906.3258. Preprint of the Isaac Newton Institute.

Miscellaneous manuscripts

a) Lecture Notes on Generalized Functions and Green Functions (41 pages).

b) Lecture Notes on Special theory of Relativity (20 pages).

c) Lecture Notes on Calculus and Ordinary Differential Equations for Biology (135 pages).

d) Doctoral thesis, "Symmetries and Integrability of nonlinear Partial Differential Equations and applications to General Relativity." (210 pages.)

Talks, participation in scientific conferences and workshops

International Conferences

1. Invited talk: *Yang-Baxter maps associated to integrable lattice equations.* International conference Nonlinear Evolution Equations and Dynamical Systems (NEEDS), Isola Rossa, Italy, 16-23 May, 2009.

2. Invited talk: *Symmetries and reductions of integrable discrete equations on quad-graphs.* 8th International Conference on Symmetries and Integrability of Difference Equations (SIDE8), Centre de Recherches Mathématiques (CRM), Montreal, 22-28 June, 2008.

3. Contributed talk: *Symmetry reductions of integrable equations on quad-graphs and discrete Painlevé equations.* International Conference on " The Painlevé Equations and Monodromy Problems ", Isaac Newton Institute for Mathematical Sciences, Cambridge, 11-22 September 2006.

4. Contributed talk: *Yang-Baxter maps, symmetries and reductions of integrable equations on quad-graphs.* International conference SIDE VII Symmetries and Integrability of Difference Equations, Melbourne, 10-14 July 2006.

5. Contributed talk: *On the symmetries of integrable partial difference equations.* International Conference on Difference Equations, Special Functions and Applications, Munich, 25-30 July 2005.

6. Contributed talk: *Symmetries and group invariant reductions of integrable partial difference equations*, 10th International conference in Modern group analysis, Larnaca, October 2004.

7. Poster presentation *Symmetries and Integrability of Difference Equations* (SIDE) VI, Helsinki, Finland, June 2004, EURESCO conference.

8. Contributed talk: *Integrable hierarchies of soliton equations I. Generalized Ernst equations for colliding plane spacetimes*, International Conference ISLAND 2: Discrete Systems and Geometry, Isle of Arran, June 2003.

9. Conference participation SIDE V, Giens, June 2002, EURESCO conference.

10. Invited Research Fellow for two months participation to the Scientific Programme *Discrete Integrable Systems*, at Isaac Newton Institute for Mathematical Sciences, 19 January - 3 July 2009, Cambridge.

Workshops, invited talks

1. Talk with title: *Yang-Baxter maps associated to integrable lattice equations,* 4 February 2009, Scientific Programme Discrete Integrable Systems, Isaac Newton Institute for Mathematical Sciences, Cambridge, 19 January - 3 July 2009.

2. Talk with title: *Yang-Baxter maps from integrable equations on quad-graphs and symmetry reductions to discrete Painlevé equations.* University of Leeds, Integrable Systems Seminar Series, 9 December, 2005.

3. Talk with title: *Integrable hierarchies of soliton equations and their emergence into Einstein's General Relativity*, Applied Mathematics Seminar, Department of Applied Mathematics, University of Leeds, UK, 20 October 2003.

4. Talk with title: *Integrability and geometrical aspects of the generalized Ernst equation*, Mathematics Seminar, Institute of Mathematics, Statistics and Actuarial Science, University of Kent, UK, 17 February 2003.

5. Talk with title: *Integrability of the generalized Ernst equations and the hierarchies of soliton equations*, LMS workshop on Integrable Systems. Department of Mathematics and Statistics, University of York, UK, 18 July 2003.

6. Talk with title: *Anti-self-dual metrics from solutions of the generalized Ernst equation*, LMS workshop on Integrable Systems, Department of Mathematics, University of Hull, UK, 24 January 2003.

7. Talk with title: *Generating PDE's as reductions of ASDYM and the generalized Ernst equation*, LMS workshop on Integrable Systems , Mathematical Institute, University of Oxford, UK, 19 November 2002.

Talks in Hellenic Conferences - Summer Schools

1. Two lectures to the 5th Summer School in Mathematics, 14-24 July 2008, at Heracklion Crete, on "The Symmetries of Sophus Lie and applications to equations of Mathematical Physics".

2. Participation with contributed talks to the 10th and 11th Conference on “New Developments on Gravity (NEB)”, as they are referred in publications [B3] and [B4].
3. Participation to NEB 8 (Karlovasi, Samos 1998), NEB 7 (Athens 1996), NEB 4 (Patras 1994).
4. Member of the organizing Commity for NEB 6, and the 6th Conference ”Group Analysis of Differential Equations”, June 17–21, 2012 (Protaras, Cyprus).

Referee in scientific journals

Physics Letters A

Journal of Physics A: Mathematical and Theoretical

Classical and Quantum Gravity

Journal of Nonlinear Mathematical Physics

Symmetry, Integrability and Geometry: Methods and Applications (SIGMA)

Applicable Analysis

Physica Scripta

Journal of Mathematical Physics

Scientific Profile in bibliographical and citation indexing databases

1. AMS MathSciNet
2. Google Scholar
3. Web of Science

Miscellaneous Services

Obligatory military services for 21 months (March 1998–December 1999) at the Hellenic Navy.

Citations (without self-citations)

A 1 A. Tongas, D. Tsoubelis and P. Xenitidis, Integrability aspects of a Schwarzian PDE. *Phys. Lett. A.* **284**, 266-274, (2001).

- C.Y. Zhang, Y. T Gao, Xu T, et al. Various methods for constructing auto-Bäcklund transformations for a generalized variable-coefficient Korteweg-de Vries model from plasmas and fluid dynamics, *Comm. in Theor. Phys.* **49** *(3), 673-678*, (2008).
- J.F. Cariñena, J. Grabowski, J. de Lucas, and C. Sardónd, Dirac–Lie systems and Schwarzian equations, *J. Differential Equations*, **257**, Issue 7, 2303–2340, (2014).
- C. Sardón, Lie systems, Lie symmetries and reciprocal transformations, *PhD thesis, Departamento de Física Fundamental Área Física Teórica Universidad de Salamanca*, `arXiv:1508.00726` (2015).

A 2 A. Tongas, D. Tsoubelis and P. Xenitidis, A family of integrable nonlinear equations of hyperbolic type. *J. Math. Phys.* **42**, 5762-5784, (2001).

- A.I. Bobenko and Yu. B. Suris, Discrete Differential Geometry: Integrable Structure, *AMS, Graduate Studies in Mathematics* Vol: 98, 404 pp. , (2008).
- S. Lobb and F. Nijhoff, Lagrangian multiforms and multidimensional consistency, *J. Phys. A: Math. Theor.* **42** 454013 (18 pp) (2009).
- A.L. Kholodenko, Gravity assisted solution of the gap problem for Yang-Mills fields, `arXiv:1001.0029v1`
- I. Habibullin and E. V. Gudkova , An algebraic method of classifying S-integrable discrete models, *Theoret. and Math. Phys.* **167**, No 3, 751-761, (2011).
- A. Doikou and T. Ioannidou, Bogomolny-Prasad-Sommerfeld monopoles and open spin chains, *J. Math. Phys* , **52**, 093508 (10 pp) (2011).
- I.T. Habibullin and E.V. Gudkova, Classification of integrable discrete Klein-Gordon models, *Phys. Scr.* **83** 045003 (2011).
- Rustem N. Garifullin, Elena V. Gudkova, and Ismagil T. Habibullin, Method for searching higher symmetries for quad-graph equations, *J. Phys. A: Math. Theor.* **44** 325202 (16pp) (2011).

A 3 A. Tongas and F. Nijhoff, Generalized hyperbolic Ernst equations for an Einstein–Maxwell–Weyl field. *J. Phys. A: Math. Gen.* **38**, 895-906, (2005).

- Sarah Beverley Lobb, Lagrangian structures and multidimensional consistency, *PhD thesis, The University of Leeds*, (2010).
- S.B. Lobb and F.W. Nijhoff, Lagrangian multiform structure for the lattice Gel'fand–Dikii hierarchy *J. Phys. A: Math. Theor.*, **43**, No 7, (2010).

A 4 A. Tongas and F. Nijhoff, The Boussinesq integrable system: Compatible lattice and continuum structures. *Glasgow Math. J.* **47A**, 205–219, (2005).

- V. Ovsienko, R. Schwartz and S. Tabachnikov, The Pentagram map: a discrete integrable system, *Comm. Math. Phys.* **299**, No 2, 409-446 (2010).
- V. Ovsienko, R. Schwartz and S. Tabachnikov, Quasiperiodic motion for the Pentagram map, *Electron. Res. Announc. Math. Sci.* **16**, 1-8 AIMS (2009).
- J. Hietarinta and D. Zhang, Multisoliton solutions to the lattice Boussinesq equation, *J. Math. Phys.* **51**, 033505 (12 pp) (2010).

- S. Tabachnikov, Geometry and Dynamics of the Pentagram Map, *AIP Conf. Proc.* 1191 pp 172-181, (2009).
- Ken-Ichi Maruno and Kenji Kajiwara, The discrete potential Boussinesq equation and its multisoliton solutions, *Applicable Analysis*, Vol 89, No 4, 593–609, (2010).
- P.H. van der Kamp and G.R.W. Quispel, The staircase method: integrals for periodic reductions of integrable lattice equations, *J. Phys. A: Math. Theor.* **43**, 465207 (2010).
- S.B. Lobb and F.W. Nijhoff, Lagrangian multiform structure for the lattice Gel'fand-Dikii hierarchy, *J. Phys. A: Math. Theor.* **43** 072003 (2010).
- J. Hietarinta, Boussinesq-like multi-component lattice equations and multi-dimensional consistency, *J. Phys. A: Math. Theor.* **44** 165204 (2011).
- Da-jun Zhang, Deng-yuan Chen and Liu-feng Hu, Extended Galilean transformations for high order systems in two integrable hierarchies, *Physica Scripta* **83** 045005 (6 pp) (2011).
- Claude Brezinski, Yi He, Xing-Biao Hu, Jian-Qing Sun, and Hon-Wah Tam, Confluent Form of the Multistep ε-Algorithm, and the Relevant Integrable System, *Studies in Applied Mathematics*, **126** issue 3 (2011).
- Yi He, Xing-Biao Hu, Jian-Qing Sun and Ernst Joachim Weniger, Convergence acceleration algorithm via an equation related to the lattice Boussinesq equation *SIAM J. Sci. Comput.* **33**, pp. 1234-1245, (2011).
- Jarmo Hietarinta and Da-jun Zhang, Soliton taxonomy for a modification of the lattice Boussinesq equation *SIGMA* **7**, 061, 14 pages (2011).
- Jian-Qing Sun, Yi He1, Xing-Biao Hu, and Hon-Wah Tam, Q-difference and confluent forms of the lattice Boussinesq equation and the relevant convergence acceleration algorithms, *J. Math. Phys.* **52**, 023522 (2011).
- D.-J Zhang, S.-L Zhao and F.W. Nijhoff, Direct Linearization of Extended Lattice BSQ Systems, *Studies in applied Mathematics* **129**, 2, pp. 220-248, (2012).
- P. Xenitidis and F. Nijhoff, Symmetries and conservation laws of lattice Boussinesq equations, *Phys. Lett. A* **376** 35 pp. 2394-2401, (2012).
- Valentin Ovsienko, Richard Evan Schwartz, and Serge Tabachnikov, Liouville-Arnold integrability of the pentagram map on closed polygons, *Duke Math. J.* **162** No 12 2149-2196 (2013).
- Songlin Zhao, Dajun Zhang and Ying Shi, Generalized Cauchy Matrix Approach for Lattice Boussinesq-Type Equations, *Chin. Ann. Math.*, 33B(2), 259–270, (2012).
- Da-jun Zhang, Song-lin Zhao, Solutions to the ABS lattice equations via generalized Cauchy matrix approach, *Studies in Applied Mathematics* **131** (1) pp. 72-103 (2013).
- T. Bridgman, W. Hereman, G. R. W. Quispel and P. H. van der Kamp, Symbolic Computation of Lax Pairs of Partial Difference Equations using Consistency Around the Cube, *Found Comput Math* **13**, 4, pp 517–544 (2013).
- S.T.J. Butler, Inverse Scattering Transform Method for Lattice Equations, *PhD thesis, Department of Applied Mathematics, University of Sydney*, (2012).
- Jun-wei Cheng and Da-jun Zhang, Conservation laws of some lattice equations *Front. Math. China* **8** (5) pp 1001-0116 (2013).
- Wei Feng, Song-Lin Zhao and Da-Jun Zhang, Exact Solutions to Lattice Boussinesq Equations *J. Nonlinear Math. Phys.* **19**, 1250031 (2012).
- Li-Juan Nong, Da-Jun Zhang, Ying Shi and Wen-Ying Zhang, Parameter Extension and the Quasi-Rational Solution of a Lattice Boussinesq Equation, *Chin. Phys. Lett.* **30**, No. 4, 040201 (2013).
- Wei Fu, Da-Jun Zhang and Ru-Guang Zhou, A Class of Two-Component Adler–Bobenko–Suris Lattice Equations, *Chin. Phys. Lett.* **31**, No. 9, 090202 (2014).

- Nong Li-Juan and Zhang Da-Juan, Non-autonomous discrete Boussinesq equation: Solutions and consistency, *Chin. Phys. B* **23**, No. 7, 070202 (2014).
- R. Willox and M. Hattori, Discretisations of constrained KP hierarchies, `arXiv:1406.5828` (2014).

A 5 A. Tongas and F. Nijhoff, A discrete Garnier type system from symmetry reduction on the lattice. *J. Phys. A: Math. Gen.* **39**, 12191–12202, (2006).

- A.G. Rasin and P.E. Hydon, Symmetries of integrable difference equations on the quad–graph, *Studies in Applied Mathematics*, **119**, 253–269 (2007).
- N. S. Witte, Biorthogonal systems on the unit circle, regular semiclassical weights, and the discrete Garnier equations, *International Mathematics Research Notices*, Vol. 2009, No. 6, pp 988-1025, (2009).
- D. Tsoubelis and P. Xenitidis, Continuous symmetric reductions of the Adler-Bobenko-Suris equations, *J. Phys. A: Math. Theor.* **42**, 165203 (2009).
- A.G. Rasin, Infinitely many symmetries and conservation laws for quad-graph equations via the Gardner method, *J. Phys. A: Math. Theor.* **43** 235201, (2010).
- A. Rasin, Conservation laws and symmetries of asymmetric equations on the quad-graph, *Functional Differential Equations* **19** No 3-4, pp 341–349, (2012).
- P. Xenitidis and F. Nijhoff, Symmetries and conservation laws of lattice Boussinesq equations *Phys. Lett. A* **376** 35 pp: 2394-2401, (2012).

A 6 V. G. Papageorgiou, A. G. Tongas and A. P. Veselov, Yang-Baxter maps and symmetries of integrable equations on quad-graphs. *J. Math. Phys.* **47**, 083502, (2006).

- A. Veselov, Yang-Baxter Maps: Dynamical Point of View, in *Combinatorial Aspect of Integrable Systems*, 145–167, The Mathematical Society of Japan, Tokyo, Japan, (2007).
- A.I. Bobenko and Yu. B. Suris, Discrete Differential Geometry: Integrable Structure, *AMS, Graduate Studies in Mathematics* Vol: 98, 404 pp. (2008).
- V.E. Adler, A.I. Bobenko, Yu.B. Suris, Discrete nonlinear hyperbolic equations. Classification of integrable cases, *Funct. Anal. Appl.*, Vol. 43 No. 1, 3-17, (2009).
- O.G. Rasin and P.E. Hydon, Symmetries of integrable difference equations on the quad–graph, *Studies in Applied Mathematics*, **119**, 253–269 (2007).
- A. Cima, A. Gasull and V. Mañosa, Some properties of the k-dimensional Lyness' map, *J. Phys. A: Math. Theor.* **41** 285205 (18pp). (2008).
- S.P. Tsarev and T. Wolf, Classification of 3–dimensional integrable scalar discrete equations *Lett. Math. Phys.* **84** ,1, 31-39, (2008)..
- S. Kakei, J.J.C. Nimmo and R. Willox, Yang-Baxter maps and the discrete KP hierarchy, *Glasgow Math. J.* **51A**, 107-119, (2009).
- T.E. Kouloukas and V.G. Papageorgiou, Yang-Baxter maps with first-degree-polynomial 2 x 2 Lax matrices, *J. Phys. A: Math. Theor.* **42** 404012 (2009).
- В.Э. Адлер, Классификация дискретных интегрируемых уравнений, Диссертация на соискание ученой степени доктора физико-математических наук, РОССИЙСКАЯ АКАДЕМИЯ НАУК Институт теоретической физики им. Л.Д. Ландау, Черноголовка (2010).
  `http://www.itp.ac.ru/~adler/dd.html`
- S. Kakei, J.J.C. Nimmo and R. Willox, Yang-Baxter maps from the discrete BKP equation, *Symmetry, Integrability and Geometry: Methods and Applications* **6**, 028 (11 pp) (2010).

- A.G. Rasin, Infinitely many symmetries and conservation laws for quad-graph equations via the Gardner method, *J. Phys. A: Math. Theor.* **43** 235201, (2010).
- S. Kakei, J.J.C. Nimmo and R. Willox, 離散 BKP 方程式と Yang-Baxter 写像, *Reports of RIAM Symposium No.21ME-S7,* Article No. 21 (pp. 142-148), Current and Future Research on Nonlinear Waves-Perspectives for the Next Decade, Proceedings of a symposium held at Chikushi Campus, Kyushu Universiy, Kasuga, Fukuoka, Japan, November 19 - 21, (2009).
- Adam Doliwa and Sergey M. Sergeev, The pentagon relation and incidence geometry, `arXiv:1108.0944`
- T.E. Kouloukas and V.G. Papageorgiou, Poisson Yang-Baxter maps with binomial Lax matrices, *J. Math Phys.* **52** 073502 (2011).
- P. Kassotakis and M. Nieszporski, Families of Integrable Equations, *SIGMA* **7** 100, 14 pages (2011).
- J. Atkinson and M. Nieszporski, Multi-quadratic quad equations: integrable cases from a factorised-discriminant hypothesis, *Int Math Res Notices* doi: 10.1093/imrn/rnt066 (2013).
- T.E. Kouloukas and V.G. Papageorgiou, 3D compatible ternary systems and Yang-Baxter maps *J. Phys. A:Math Theor.* **45** 345204 (2012).
- P. Kassotakis and M. Nieszporski, On non-multiaffine consistent-around-the-cube lattice equations, *Phys. Lett. A*, **376**, Issue 45, (2012).
- A. Rasin, Conservation laws and symmetries of asymmetric equations on the quad-graph, *Functional Differential Equations* **19** No 3-4, pp 341–349, (2012).
- S. Konstantinou-Rizos and A.V. Mikhailov, Darboux transformations, finite reduction groups and related Yang-Baxter maps, *J. Phys. A: Math. Theor.* **46** 425201, (2013).
- Masataka Kanki, Jun Mada and Tetsuji Tokihiro, Discrete Integrable Equations over Finite Fields, *SIGMA* **8** 054, 12 pages (2012).
- Masataka Kanki, Jun Mada, and Tetsuji Tokihiro, Soliton Solutions of a Generalized Discrete KdV Equation, *J. Phys. Soc. Jpn.* **81** 084002 (5 pages) (2012).
- V. Caudrelier, N. Crampé and Q.C. Zhang, Set-theoretical reflection equation: Classification of reflection maps, *J. Phys. A: Math. Theor.* **46** 095203 (2013).
- James Atkinson, Idempotent biquadratics, Yang-Baxter maps and birational representations of Coxeter groups, `arXiv:1301.4613` (2013).
- M Kanki, Studies on the discrete integrable equations over finite fields, Ph.D Thesis, 71 pages, 15 figures, `arXiv:1306.0962`, (2013).
- V. Caudrelier, N. Crampe, Q.C. Zhang, Integrable boundary for quad-graph systems: Three-dimensional boundary consistency, *SIGMA* **10**, 14, doi: 10.3842/SIGMA.2014.014. (2014).
- Adam Doliwa, Non-commutative rational Yang-Baxter maps, *Lett. Math. Phys.* DOI 10.1007/s11005-013-0669-7 (2013).
- V.E. Adler, V.V. Postnikov, On discrete integrable equations of higher order, *J. Phys. A: Math. Theor.* **47** 045206 (2014).
- C. Zhang, Continuous and quad-graph integrable models with a boundary: Reflection maps and 3D-boundary consistency, Doctoral thesis, City University London, (2013).
- Валерий Витальевич Постников, Интегрируемые эволюционные цепочки и дискретные уравнения, Диссертация на соискание ученой степени кандидата физико-математических наук, Сочинский институт Российского университета дружбы народов, Сочи 2014.
- James Atkinson and Yasuhiko Yamada, Quadrirational Yang-Baxter maps and the affine-E8 Painlevé lattice, `arXiv:1405.2745`, (2014).

- Sotiris Konstantinou-Rizos, Darboux transformations, discrete integrable systems and related Yang-Baxter maps, *PhD thesis, School of Mathematics, the University of Leeds,* arXiv:1410.5013, (2014).
- Takayuki Tsuchida, On a new integrable discretization of the derivative nonlinear Schrödinger (Chen-Lee-Liu) equation, (2015), arXiv:1501.01956
- Takayuki Tsuchida, Integrable discretization of the vector/matrix nonlinear Schrödinger equation and the associated Yang-Baxter map, (2015) arXiv:1505.07924
- A.P. Fordy and P. Xenitidis, $\mathbb{Z}_N$ graded discrete Lax pairs and Yang-Baxter maps, (2015) arXiv:1510.05590
- P. Kassotakis, M. Nieszporski and P. Damianou, 2^n- rational maps (2015) arXiv:1512.00771
- Wolfgang Rump, Right l-groups, geometric Garside groups, and solutions of the quantum Yang–Baxter equation, *Journal of Algebra* **439**, pp 470–510, (2015).
- C.M. Ormerod and E.M. Rains, Commutation relations and discrete Garnier systems, arXiv:1601.06179, (2016).
- N. Joshi and S.B. Lobb, Singular dynamics of a q-difference Painlevé equation in its initial-value space, *J. Phys. A: Math. Theor.* **49**, 014002 (2016).

A 7 V. G. Papageorgiou and A. G. Tongas. Yang-Baxter maps and multi–field integrable lattice equations. *J. Phys. A: Math. Theor.* **40**, 12677-12690, (2007).

- C. M. Viallet, Integrable lattice maps: Q_V, a rational version of Q_4, *Glasgow Math. J.* **51A** 157-163, (2009).
- T.E. Kouloukas and V.G. Papageorgiou, Yang-Baxter maps with first-degree-polynomial 2 x 2 Lax matrices, *J. Phys. A: Math. Theor.* **42** 404012 (2009).
- В.Э. Адлер, Классификация дискретных интегрируемых уравнений, Диссертация на соискание ученой степени доктора физико-математических наук, РОССИЙСКАЯ АКАДЕМИЯ НАУК Институт теоретической физики им. Л.Д. Ландау, Черноголовка (2010).
  http://www.itp.ac.ru/~adler/dd.html
- Jarmo Hietarinta and Claude Viallet, Integrable lattice equations with vertex and bond variables *J. Physics. A, Math. and Theor.* **44**, Issue 38, pp 385201 (2011).
- T.E. Kouloukas and V.G. Papageorgiou, Poisson Yang-Baxter maps with binomial Lax matrices, *J. Math Phys.* **52** 073502 (2011).
- T.E. Kouloukas and V.G. Papageorgiou, 3D compatible ternary systems and Yang-Baxter maps *J. Phys. A:Math Theor.* **45** 345204 (2012).
- G.G. Grahovski and A.V. Mikhailov, Integrable Discretisations for a Class of Nonlinear Schrodinger Equations on Grassmann Algebras, *Phys. Lett. A.* **377**, Issue 45-48, pp 3254-3259, (2013).
- V.E. Adler, V.V. Postnikov, On discrete integrable equations of higher order, *J. Phys. A: Math. Theor.* **47** 045206 (2014).
- S. Konstantinou-Rizos and A.V. Mikhailov, Darboux transformations, finite reduction groups and related Yang-Baxter maps, *J. Phys. A: Math. Theor.* **46** 425201, (2013).
- Sotiris Konstantinou-Rizos, On the integrability of the transfer dynamics of non-involutive Yang-Baxter maps, arXiv:1311.7019, (2013).
- Sotiris Konstantinou-Rizos, Darboux transformations, discrete integrable systems and related Yang-Baxter maps, *PhD thesis, School of Mathematics, the University of Leeds, 2014,* arXiv:1410.5013.
- Валерий Витальевич Постников, Интегрируемые эволюционные цепочки и дискретные уравнения, Диссертация на соискание ученой степени кандидата физико-математических наук, Сочинский институт Российского университета дружбы народов, Сочи 2014.

- G.G. Grahovski, S. Konstantinou-Rizos, A. V. Mikhailov, Grassmann extensions of Yang-Baxter maps (2015) arXiv:1510.06913

A 8 A. Tongas, D. Tsoubelis and P. Xenitidis. Affine linear and D_4 symmetric lattice equations: Symmetry analysis and reductions. *J. Phys. A: Math. Theor.* **40**, 13353-13384, (2007).

- D. Levi, M. Petrera, C. Scimiterna and R. Yamilov, On Miura transformations and Volterra-type equations associated with the Adler-Bobenko-Suris equations, *Symmetry, Integrability and Geometry: Methods and Applications* **4**, (2008), 077, 14 pages
- D. Levi and R.I. Yamilov, The generalized symmetry method for discrete equations, *J. Phys. A: Math. Theor.* **42**, 454012 (18pp), (2009).
- P.D. Xenitidis and V.G. Papagerogiou, Symmetries and integrability of discrete equations defined on a black-white lattice, *J. Phys. A: Math. Theor.* **42**, 454025, (2009).
- D. Tsoubelis and P. Xenitidis, Continuous symmetric reductions of the Adler-Bobenko-Suris equations, *J. Phys. A: Math. Theor.* **42** 165203, (2009).
- D. Levi and R.I. Yamilov, On a nonlinear integrable difference equation on the square, *Ufa Math. J.* 1:2, 101-105, (2009), arXiv:0902.2126v2.
- A.G. Rasin, Infinitely many symmetries and conservation laws for quad-graph equations via the Gardner method, *J. Phys. A: Math. Theor.* **43** 235201, (2010).
- D. Levi, R.I. Yamilov, Integrability Test for Discrete Equations via Generalized Symmetries, *AIP Conf. Proc.*, December 23, 2010, Volume 1323, pp. 203-214, arXiv:1010.3400v1
- D. Levi, R.I. Yamilov, Generalized symmetry integrability test for discrete equations on the square lattice, *J. Phys. A: Math. Theor.* **44** 145207 (22pp) (2011).
- Alexander V. Mikhailov, and Jing Ping Wang, A new recursion operator for Adler's equation in the Viallet equation, *Phys. Lett. A* **375**, Issue 45, pp 3960-3963 (2011).
- P. Pavlos Xenitidis, F. Nijhoff and S. Lobb, On the Lagrangian formulation of multidimensionally consistent systems, *Proc. R. Soc. A* **467** 3295–3317, (2011).
- P. Xenitidis, Symmetries and conservation laws of the ABS equations and corresponding differential-difference equations of Volterra type, *J. Phys. A: Math. Theor. 44* 435201, (2011).
- A.V. Mikhailov, J.P. Wang and P. Xenitidis, Cosymmetries and Nijenhuis recursion operators for difference equations, *Nonlinearity 24*, 7, pp.: 2079-2097, (2011).
- A.V. Mikhailov, J.P. Wang and P. Xenitidis, Recursion operators, conservation laws and integrability conditions for difference equations *Theor. Math. Phys.* **167**, 1, pp: 421-443, (2011).
- Farbod Khanizadeh, Alexander V. Mikhailov, Jing Ping Wang, Darboux transformations and Recursion operators for differential–difference equations, *Theoret. and Math. Phys.* **177**, Issue 3, pp 1606-1654, (2013).
- Mike Hay, Phil Howes and Yang Shi, A systematic approach to reductions of type-Q ABS equations *J. Phys. A: Math. Theor.*, **48**, No 9, (2015).
- A.V. Mikhailov and P. Xenitidis, Second Order Integrability Conditions for Difference Equations: An Integrable Equation, *Lett. Math. Phys.* **104**, 4, Pp. 431-450, (2014).
- Andrei K. Svinin, On some class of partial difference equations admitting a zero-curvature representation arXiv:1409.6784 (2014).
- G. Gubbiotti, C. Scimiterna and D. Levi, A non autonomous generalization of the Q_V equation (2015) arXiv:1512.00395
- Rustem N. Garifullin, Ismagil T. Habibullin, Ravil I. Yamilov, Peculiar symmetry structure of some known discrete nonautonomous equations *J. Phys. A:Math. Theor.* **48** 235201 (2015).

A 9 V.G. Papageorgiou, Yu.B. Suris, A.G. Tongas and A.P. Veselov, On quadrirational Yang-Baxter maps, *SIGMA* **6**, 033, 9 pages (2010).

- S. Kakei, J.J.C. Nimmo and R. Willox, Yang-Baxter maps from the discrete BKP equation, *Symmetry, Integrability and Geometry: Methods and Applications* **6**, 028 (11 pp) (2010).
- P. Kassotakis and M. Nieszporski, Families of Integrable Equations, *SIGMA* **7** 100, 14 pages (2011).
- T.E. Kouloukas and V.G. Papageorgiou, Poisson Yang-Baxter maps with binomial Lax matrices, *J. Math Phys.* **52** 073502 (2011).
- T.E. Kouloukas and V.G. Papageorgiou, 3D compatible ternary systems and Yang-Baxter maps *J. Phys. A:Math Theor.* **45** 345204 (2012).
- J. Atkinson and M. Nieszporski, Multi-quadratic quad equations: integrable cases from a factorised-discriminant hypothesis, *Int Math Res Notices* doi: 10.1093/imrn/rnt066 (2013)
- P. Kassotakis and M. Nieszporski, On non-multiaffine consistent-around-the-cube lattice equations, *Phys. Lett. A*, **376**, Issue 45, (2012).
- B. Grammaticos, A. Ramani, C-M. Viallet, From Yang-Baxter maps to integrable recurrences, *Journal of Nonlinear Mathematical Physics* Vol. **20**, No. 2, 260–270 (2013).
- V. Caudrelier, N. Crampé and Q.C. Zhang, Set-theoretical reflection equation: Classification of reflection maps, *J. Phys. A: Math. Theor.* **46** 095203 (2013).
- James Atkinson, Idempotent biquadratics, Yang-Baxter maps and birational representations of Coxeter groups, `arXiv:1301.4613`
- V. Caudrelier, N. Crampe, Q.C. Zhang, Integrable boundary for quad-graph systems: Three-dimensional boundary consistency *SIGMA* **10**, 14, doi: 10.3842/SIGMA.2014.014. (2014).
- C. Zhang, Continuous and quad-graph integrable models with a boundary: Reflection maps and 3D-boundary consistency, Doctoral thesis, City University London, (2013).
- Sotiris Konstantinou-Rizos, Darboux transformations, discrete integrable systems and related Yang-Baxter maps, *PhD thesis, School of Mathematics, the University of Leeds, 2014,* `arXiv:1410.5013`.
- A.P. Fordy and P. Xenitidis, $\mathbb{Z}_N$ graded discrete Lax pairs and Yang-Baxter maps, (2015) `arXiv:1510.05590`
- P. Kassotakis, M. Nieszporski and P. Damianou, 2^n- rational maps (2015) `arXiv:1512.00771`
- J. Avan, E. Ragoucy and V. Rubtsov, Quantization and Dynamisation of Trace-Poisson Brackets, *Comm. Math. Phys.* **341**, 1, pp 263-287, (2016).

B 1 A. Tongas, D. Tsoubelis and V. Papageorgiou, Symmetries and group invariant reductions of integrable partial difference equations, N. H. Ibragimov, C. Sophocleous and P. A. Damianou eds, Proceedings of the 10th International Conference in Modern Group Analysis (Larnaca, 2004), pp. 222-230.

- O.G. Rasin and P.E. Hydon, Symmetries of integrable difference equations on the quad–graph, *Studies in Applied Mathematics*, **119**, 253–269 (2007).
- D. Levi, M. Petrera, C. Scimiterna and R. Yamilov, On Miura transformations and Volterra-type equations associated with the Adler-Bobenko-Suris equations, *Symmetry, Integrability and Geometry: Methods and Applications* **4**, 077, 14 pages , (2008).
- D. Levi and R.I. Yamilov, The generalized symmetry method for discrete equations, *J. Phys. A: Math. Theor.* **42**, 454012 (18pp), (2009).
- A.G. Rasin, Infinitely many symmetries and conservation laws for quad-graph equations via the Gardner method, *J. Phys. A: Math. Theor.* **43** 235201, (2010).

- A. Rasin, Conservation laws and symmetries of asymmetric equations on the quad-graph, *Functional Differential Equations* **19** No 3-4, pp 341–349, (2012).
- I. T. Habibullin, A. R. Khakimova and M.N. Poptsova, On a method for constructing the Lax pairs for nonlinear integrable equations,*J. Phys. A: Math. Theor.* **49** 035202 (2016).

B 2 A. Tongas, On the symmetries of integrable partial difference equations. Proceedings of the International Conference on Difference Equations, Special Functions and Orthogonal Polynomials, Munich, July 2005, S Elaydi, J Cushing, R, Lasser, V Papageorgiou, A Ruffing and W Van Assche eds, World Scientific 2007, pp. 654–663.

- D. Levi and M. Petrera, Continuous symmetries of the lattice potential KdV equation, *J. Phys. A: Math. Theor.* **40**, 4241–4159, (2007).

Γ 1 V. G. Papageorgiou and A. G. Tongas, Yang-Baxter maps associated to elliptic curves, `arXiv:0906.3258`. Preprint of the Isaac Newton Institute (electronic resource: `http://www.newton.ac.uk/preprints/NI09053.pdf`)

- T.E. Kouloukas and V.G. Papageorgiou, Yang-Baxter maps with first-degree-polynomial 2 x 2 Lax matrices, *J. Phys. A: Math. Theor.* **42** 404012 (2009).
- P. Xenitidis, F. Nijhoff and S. Lobb, On the Lagrangian formulation of multidimensionally consistent systems, *Proc. R. Soc. A* **467** 3295–3317, (2011).
- T.E. Kouloukas and Dinh T. Tran, Poisson structures for lifts and periodic reductions of integrable lattice equations (2014) `arXiv:1410.4628`
- A.P. Fordy and P. Xenitidis, $\mathbb{Z}_N$ graded discrete Lax pairs and Yang-Baxter maps, (2015) `arXiv:1510.05590`