

SOTIRIS KONSTANTINO-U - RIZOS

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EDUCATION

- 2010 - 2014 **PhD in Applied Mathematics**, University of Leeds, UK.
Supervisor: A.V. Mikhailov. Adviser: F.W. Nijhoff.
- 2006 - 2009 **MSc in Applied Mathematics**, University of Patras, Greece. Grade: 8.6/10 (distinction).
- 2002 - 2006 **BSc (Hons) in Mathematics**, University of Patras, Greece. Grade: 8.18/10 (Ranked 4th).

ACADEMIC POSITIONS

- SEP 2020– Associate Professor, Mathematics Faculty, P.G. Demidov Yaroslavl State University, Russian Federation.
Lecturing: *Mathematical Analysis, Ordinary Differential Equations, Partial Differential Equations, Integrable Systems, Advanced Mathematics using packages of symbolic computation* (labs).
- NOV 2017– Leading researcher (associate Professor), Centre of Integrable Systems, P.G. Demidov Yaroslavl State University, Russian Federation.
Supervisor of the Educational Programme of the Kolmogorov Joint Institute of Mathematics and Computer Sciences.
Students under my supervision: Kristina Bobrova, Michail Chirkov, Ksenya Fisenko, Vadim Kolesov, Alina Kutuzova, Alena Michurina, Anastasia Nikitina, Anastasia Petrova.
- DEC 2015– Leading researcher, Institute of Mathematical Physics & Seismodynamics, Chechen State
OCT 2017 University, Russian Federation.
- JUL 2015– Lecturer of Mathematical Physics, Faculty of Mathematics & Computer Technology, Chechen
OCT 2017 State University, Russian Federation.
Lecturing: *Mathematical Analysis I & II, Differential Equations* (BSc) and *Introduction to Integrable Systems* (MSc seminars). Seminars: Series of seminars on Differential Equations.

RESEARCH INTERESTS

Integrability of discrete and continuous systems; integrable discretizations of PDEs; Darboux and Bäcklund transformations; Yang-Baxter maps; n -simplex maps, Grassmann algebras; noncommutative extensions of discrete integrable systems; classification of discrete integrable systems.

PUBLICATIONS

- JOURNAL ARTICLES [1] S. Konstantinou-Rizos, *Noncommutative solutions to Zamolodchikov's tetrahedron equation and matrix six-factorisation problems*, Physica D **440** 133466 (2022)
- [2] S. Igonin and S. Konstantinou-Rizos, *Algebraic and differential-geometric constructions of set-theoretical solutions to the Zamolodchikov tetrahedron equation*, Journal of Physics A: Math. Theor. **55** 405205 (2022)
- [3] X. Fisenko, S. Konstantinou-Rizos and P. Xenitidis, *A discrete Darboux-Lax scheme for integrable difference equations*, Chaos, Solitons and Fractals **158** 112059 (2022)

- [4] S. Igonin V. Kolesov, S. Konstantinou-Rizos and M. Preobrazhenskaia, *Tetrahedron maps, Yang-Baxter maps, and partial linearisations*, Journal of Physics A: Math. Theor. **54** 505203 (2021)
- [5] P. Adamopoulou, S. Konstantinou-Rizos and G. Papamikos, *Integrable extensions of the Adler map via Grassmann algebras*, Theoretical and Mathematical Physics **207**(2) 553–559 (2021)
- [6] V. Buchstaber, S. Igonin, S. Konstantinou-Rizos and M. Preobrazhenskaia, *Yang–Baxter maps, Darboux transformations, and linear approximations of refactorisation problems*, Journal of Physics A: Math. Theor. **53** 504002 (2020)
- [7] S. Konstantinou-Rizos, *Nonlinear Schrödinger type tetrahedron maps*, Nuclear Physics B **960** 115207 (2020)
- [8] S. Konstantinou-Rizos, *On the 3D consistency of a Grassmann extended lattice Boussinesq system*, Nuclear Physics B **951** 114878 (2020)
- [9] S. Konstantinou-Rizos and G. Papamikos, *Entwining Yang-Baxter maps related to NLS type equations*, Journal of Physics A: Math. Theor. **52** 485201 (2019)
- [10] S. Konstantinou-Rizos and T. Kouloukas, *A noncommutative discrete potential KdV lift*, Journal of Mathematical Physics **59**:6 063506 (2018)
- [11] S. Konstantinou-Rizos and A. V. Mikhailov, *Anticommutative extension of the Adler map*, Journal of Physics A: Math. Theor. **49** 30LT03, (2016) **IOPSelect**
- [12] G. Grahovski, S. Konstantinou-Rizos and A. V. Mikhailov, *Grassmann extensions of Yang-Baxter maps*, Journal of Physics A: Math. Theor. **49**, 145202 (2016)
- [13] S. Konstantinou-Rizos, A. V. Mikhailov and P. Xenitidis, *Reduction groups and related integrable difference systems of NLS type*, Journal of Mathematical Physics **56**, 082701 (2015)
- [14] S. Konstantinou-Rizos and A. V. Mikhailov, *Darboux transformations, finite reduction groups and related Yang-Baxter maps*, Journal of Physics A: Math. Theor. **46**, 425201 (2013)
- BOOK CHAPTERS [1] D. Bilman and S. Konstantinou-Rizos, *Discrete integrable systems, Darboux transformations and Yang-Baxter maps*, in *Symmetries and Integrability of Difference Equations*, D. Levi et al. (eds.), CRM Series in Mathematical Physics, Springer, DOI: 10.1007/978-3-319-56666-5_5 (2017)
- EDITORIAL WORK [1] V. M. Buchstaber (Ed.), S. Konstantinou-Rizos (Ed.) and A. V. Mikhailov (Ed.), *Recent developments in integrable systems and related topics of mathematical physics*, PROMS, Springer, DOI: 10.1007/978-3-030-04807-5 (2018)

GRANTS

- 2022 Grant from the Ministry of Science and Higher Education of the Russian Federation for the organisation of a satellite international scientific conference. Supervisor.
- 2020 Grant from the Russian Foundation for Basic Research “Reserch events” for the organisation of international scientific conference (grant number 20-01-22037). Supervisor.
- 2020 Grant from the Russian Science Foundation “Research by scientific groups under the supervision of young scientists,” Presidential program of research projects implemented by leading scientists, including young scientists (grant number 20-71-10110). Supervisor.
- 2020 London Mathematical Society “Research in pairs scheme 4” (LMS, Ref. 41962), UK.
- 2020 Grant “Research in groups” International Mathematical Centre (ICM), UK.
- 2019 University of Essex Visiting Fellowship grant. Four week visit, November 2019.
- 2019 State Programme of the Ministry of Education and Science of the Russian Federation, project No 1.13560.2019/13.1. Co-supervisor of the grant.
- 2018 London Mathematical Society Short Visit Grant Scheme 2, Ref. 21717 (completed). Host: Dr. G. Grahovski, University of Essex, UK.
- 2018 State Programme of the Ministry of Education and Science of the Russian Federation, project No 1.12873.2018/12.1. Co-supervisor of the grant.
- 2017 State Programme of the Ministry of Education and Science of the Russian Federation, project 1.10160.2017/5.1. Co-supervisor of the grant.

CONFERENCE ORGANISATION

- JULY 2022 Chairman of the organising committee of the Satellite International Conference of Nonlinear Dynamics and Integrability & Scientific School "Nonlinear Days" in Yaroslavl, Russia. Webpage: <https://lomonosov-msu.ru/eng/event/6251/>.
- OCT 2021 Chairman of the organising committee of the 3rd International Conference of Integrable Systems & Nonlinear Dynamics in Yaroslavl, Russia. Webpage: <https://lomonosov-msu.ru/eng/event/6844/>.
- OCT 2020 Chairman of the organising committee of the 2nd International Conference of Integrable Systems & Nonlinear Dynamics in Yaroslavl, Russia. Webpage: <https://lomonosov-msu.ru/eng/event/6054/>.
- AUG 2019 Organising committee of the IX-th International Conference SOLITONS, COLLAPSES AND TURBULENCE: Achievements, Developments and Perspectives (SCT-19) in honor of Vladimir Zakharov's 80th birthday in Yaroslavl, Russia. Webpage: <https://lomonosov-msu.ru/eng/event/5298/>.
- OCT 2018 Chairman of the organising committee of the International Conference of Integrable Systems & Nonlinear Dynamics in Yaroslavl, Russia. Webpage: <https://lomonosov-msu.ru/eng/event/5122/>.
- AUG 2017 Organising committee of the International Conference of Math. Physics *Kezenoi-Am 2017* in Grozny, Russia.
- OCT 2016 Organising committee of the International Conference of Mathematical Physics *Kezenoi-Am 2016* in Grozny, Russia.

PRESENTATIONS

INVITED TALKS

- NOV 2022 *Method for constructing solutions to integrable PΔEs*, "Conference of Mathematical Centres", Lomonosov Moscow State University, Moscow, Russia.
- JUL 2022 *Yang-Baxter maps and Discrete Integrable Systems*, "28th Summer School-Conference on Dynamical Systems and Complexity dedicated to T. Fokas' 70th birthday", Chania, Crete, Greece.
- MAY 2022 *Discrete Integrable Systems and Yang-Baxter maps*, "All-Russian forum for popularisation of Mathematics and Mathematical Education", Sofia Kovalevskaya Northwestern Centre for Mathematical Research, Pskov State University, Russia.
- NOV 2021 *A discrete Darboux-Lax scheme for solving systems of integrable difference equations*, "Regular and chaotic dynamics", Steklov Mathematical Institute, Moscow, Russia.
- SEP 2021 *Darboux transformations and Zamolodchikov's tetrahedron equation*, "International Conference 'Integrability' dedicated to the 75th anniversary of A.K. Pogrebkov", (Online) Steklov Mathematical Institute, Moscow, Russia.
- AUG 2020 *NLS type tetrahedron maps*, "Conference of Mathematical Centres", Sirius, Sochi.
- FEB 2020 *On the 3D consistency of Grassmann extended lattice systems*, International conference "Dynamics in Siberia", Sobolev Institute, Novosibirsk, Russia.
- NOV 2019 *Integrable discretisations of nonlinear PDEs and related Yang-Baxter maps*, Liverpool Hope University, UK.
- FEB 2019 *Darboux transformations and related discrete integrable systems and Yang-Baxter maps*, Lomonosov Moscow State University, Russia.
- JAN 2019 *Darboux transformations, Yang-Baxter maps and their noncommutative extensions*, Heriot-Watt University, Edinburgh, UK.
- JAN 2019 *Grassmann extensions of discrete Integrable Systems and their associated Yang-Baxter maps*, University of Leeds, UK.
- JAN 2019 *Darboux transformations and Yang-Baxter maps*, University of Essex, UK.

- JUN 2017 *Grassmann extension scheme: a noncommutative dpKdV system*, International conference “Recent Advances in Hamiltonian and Nonholonomic Dynamics,” Moscow Institute of Physics and Technology, Moscow, Russia.
- FEB 2017 *Lifts to noncommutative extensions of Yang-Baxter maps*, International conference “Dynamics in Siberia”, Sobolev Institute, Novosibirsk, Russia.
- JUN 2016 *Darboux & Bäcklund transformations: discrete systems, matrix refactorisation problems and Yang-Baxter maps I & II*, Abecedarian of International SIDE summer school, Montreal, Canada.

SELECTED CONTRIBUTED TALKS

- JUL 2018 *A Grassmann-extended discrete potential KdV*, International Workshop on “Classical and Quantum Integrable Systems CQIS-2018,” Protvino, Russia.
- MAY 2017 *Discrete integrable systems and lifts to Yang-Baxter maps: Grassmann extension scheme*, VIII-th Int. Conf. “SOLITONS, COLLAPSES AND TURBULENCE: Achievements, Developments and Perspectives,” L.D. Landau inst. of Theoretical Physics, RAS, Moscow, Russia.
- JUL 2016 *Noncommutative extensions of Yang-Baxter maps associated to NLS type equations*, International conference “SIDE 12,” (Symmetries and Integrability of Difference Equations) Montreal, Canada.
- MAR 2016 *Grassmann extensions of Yang-Baxter maps related to NLS type equations*, International conference “Dynamics in Siberia,” Sobolev Institute, Novosibirsk, Russia.
- SEP 2015 *Integrability properties of NLS type equations via Darboux transformations, and related Yang-Baxter maps*, International conference “Toric Topology, Number Theory and Applications,” Khabarovsk, Russia.
- JUL 2014 *Integrability of discrete systems and complete integrability of Yang-Baxter maps*, 1st Early Career South East Mathematical Physics Seminar, Kent, UK.
- JUL 2013 *Darboux transformations, discrete integrable systems and related Yang-Baxter maps*, International workshop “Discrete Integrable Systems,” (a follow-up meeting) Isaac Newton institute, Cambridge, UK.
- JUN 2013 *Darboux transformations and related Yang-Baxter maps*, International conference “15th Geometry, Integrability and Quantization,” Varna, Bulgaria.

POSTERS

- APR 2013 *Yang-Baxter maps and reduction groups with degenerate orbits*, BAMC International conference, Leeds, UK.
- JUN 2012 *Implicit Yang-Baxter maps and reduction groups with degenerate orbits*, International conference “SIDE 10,” Ningbo, China.

PREVIOUS TEACHING EXPERIENCE

POSTGRADUATE TUTOR, UNIVERSITY OF LEEDS, UK

- 2013 - 2014 *Linear Differential Equations and Transforms, Nonlinear Differential Equations (Dynamical Systems), Numbers & Vectors and Number Systems.*
- 2012 - 2013 *Calculus and Mathematical Analysis, Mathematics I and Modelling with Differential Equations.*
- 2011 - 2012 *Calculus and Mathematical Analysis, Introductory Linear Algebra, Mathematics I and Modelling with Differential Equations.*

MATHS SUPPORT TUTOR, UNIVERSITY OF LEEDS, UK

- 2013 - 2014 Support to University of Leeds students with difficulties in mathematics, Maths Support Centre, University of Leeds.

POSTGRADUATE TUTOR, UNIVERSITY OF PATRAS, GREECE

- 2009 - 2010 *Ordinary Differential Equations I, Partial Differential Equations I, Partial Differential Equations II* and (lab) *Adv. Math. & App. with Mathematica & Maple.*
- 2008 - 2009 *Ordinary Differential Equations I, Partial Differential Equations II* and (lab) *Adv. Math. & App. with Mathematica & Maple.*
- 2007 - 2008 *Special Relativity, Partial Differential Equations II* and (lab) *Adv. Math. & App. with Mathematica & Maple.*

SCHOLARSHIPS/ DISTINCTIONS

- 2010 The University of Leeds “William Wright Smith Scholarship” (full time PhD scholarship granted by the University of Leeds) and “J.E. Crowther scholarship” (contribution to fees).
- 2004 Scholarship from the Greek State Scholarships Foundation for my performance in my 2nd year of my undergraduate studies.
- 2003 Scholarship from the Greek State Scholarships Foundation for my performance in my 1st year of my undergraduate studies.

ADDITIONAL SKILLS

- MEMBERSHIPS Member of the American Mathematical Society (AMS);
- LANGUAGES Greek (Native), English (Fluent), Russian (Fluent);
- COMPUTER SKILLS Mathematica, Maple, \LaTeX ;
- REFEREEING Referee of Journal of Physics A: Mathematical and Theoretical, Physics Letters A, Theoretical and Mathematical Physics, Journal of Bifurcations and Chaos, Journal of Difference Equations and Applications;
- REVIEWING Reviewer at Mathematical Reviews, Zentralblatt Math (zbMATH).