

Personal Information

Name in passport: Semen Artamonov
Name in publications: Semeon Arthamonov
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Professional experience

07.2024–present *Associate Professor*
Beijing Institute of Mathematical Sciences and Applications, Beijing, China

08.2022–06.2024 *Postdoctoral Fellow*
Department of Mathematics, University of Toronto, Toronto ON, Canada

07.2021–09.2022 *CRM-ISM Postdoctoral Fellow*
Centre de Recherches Mathématiques, Montréal QC, Canada

07.2018–06.2021 *Morrey Visiting Assistant Professor*
University of California, Berkeley, Berkeley CA, USA

09.2013–05.2018 *Teaching Assistant (part-time)*
Rutgers, The State University of New Jersey, New Brunswick NJ, USA

10.2006–08.2013 *Laboratory Assistant, Engineer (part-time)*
Institute for Theoretical and Experimental Physics, Moscow, Russia

Education and Academic degrees

09.2013-05.2018 Rutgers, The State University of New Jersey, New Brunswick NJ, USA
Ph.D. in Mathematics (May 2018)
Thesis: Generalized Quasi Poisson Structures and Noncommutative Integrable Systems, Thesis advisor: Prof. V. Retakh

09.2006-06.2012 Moscow Institute of Physics and Technology, Moscow, Russia
M.S. in Applied Mathematics and Physics (June 2012)
Thesis: Modifications of bundles as generating functions of Lax operators
Scientific advisor: Dr. A. Zotov

B.S. in Applied Mathematics and Physics (June 2010)
Thesis: Double scaling limit of the elliptic $SL(N, \mathbb{C})$ top
Scientific advisor: Dr. M. Olshanetsky

Research Interests

Algebra, Representation Theory, Integrable Systems, Noncommutative Geometry.

Academic publications

Preprints

- S. Arthamonov, L. Chekhov, P. Di Francesco, R. Kedem, G. Schrader, A. Shapiro, M. Shapiro
Cluster structure on genus 2 spherical DAHA: seven-colored flower,
arXiv:2402.16074
- S. Arthamonov
Classical limit of genus two DAHA,
arXiv:2309.01011 (under review)

Peer-reviewed manuscripts

16. S. Arthamonov, Sh. Shakirov
An Elliptic Generalization of A_1 Spherical DAHA at $K = 2$
International Mathematics Research Notices 2024 (19), 13046-13084
15. S. Arthamonov, N. Ovenhouse, M. Shapiro
Noncommutative networks on a cylinder
Commun. Math. Phys. 405, 129 (2024) DOI:10.1007/s00220-023-04873-9
14. S. Arthamonov, J. Harnad, J. Hurtubise
Lagrangian Grassmannians, CKP hierarchy and hyperdeterminantal relations
Commun. Math. Phys. 401 (2), 1337-1381 (2023) DOI:10.1007/s00220-023-04670-4
13. S. Arthamonov, J. Harnad, J. Hurtubise
Tau functions, infinite Grassmannians and lattice recurrences
J. Math. Phys. 64, 023502 (2023) Editor's pick.
12. S. Arthamonov, N. Reshetikhin
Superintegrable Systems on Moduli Spaces of Flat Connections
Comm. Math. Phys., July 2021, 386(3), 1337-1381.
11. S. Arthamonov, Sh. Shakirov
Refined Chern-Simons Theory for genus two,
JKTR, July 2020, Vol. 29 No. 7, 2050044.
10. S. Arthamonov, Sh. Shakirov
Genus two Generalization of A_1 spherical DAHA,
Selecta Math. (New Series), February 2019, Vol. 25, 17.
9. S. Arthamonov
Modified Double Poisson Brackets,
Journal of Algebra, December 2017, Vol. 492, pp 212-233.
8. S. Arthamonov,
Noncommutative Inverse Scattering Method for the Kontsevich system,
Lett. Math. Phys., September 2015, Vol. 105, Issue 9, pp 1223-1251.
7. G. Aminov and S. Arthamonov,
New linear problems for Painlevé equations III-V,
Constructive Approximation, June 2015, Vol. 41, Issue 3, pp 357-383.

6. G. Aminov, S. Arthamonov, A. Smirnov, A. Zotov,
Rational Top and its Classical R-matrix,
J. Phys. A: Math. Theor., July 2014, Volume 47, 305207.
5. S. Arthamonov, A. Mironov, A. Morozov,
Differential hierarchy and additional grading of knot polynomials,
Theoretical and Mathematical Physics, May 2014, Volume 179, Issue 2, pp 509-542.
4. S. Arthamonov, A. Mironov, A. Morozov, A. Morozov,
Link polynomial calculus and the AENV conjecture,
JHEP, April 2014, p 156.
3. G. Aminov and S. Arthamonov,
Reduction of the elliptic Schlesinger system,
Theoretical and Mathematical Physics, January 2013, Volume 174, Issue 1, pp 1–20.
2. S. Arthamonov,
New integrable systems as a limit of the elliptic $SL(N, \mathbb{C})$ top,
Theoretical and Mathematical Physics, May 2012, Volume 171, Issue 2, pp 589-599.
1. G. Aminov and S. Arthamonov,
Reduction of the elliptic $SL(N, \mathbb{C})$ top,
J. Phys. A: Math. Theor. 44 075201, 2011.

Invited Talks

35. *Genus two Double Affine Hecke Algebra and its Classical Limit*,
Symplectic Geometry Seminar, University of Toronto, (Toronto ON, Canada; 2023)
34. *Double Affine Hecke Algebras beyond genus one*, Ohio State University. (Online; 2023)
33. *Infinite Lagrangian Grassmannians and Lattice Recurrences of type C*,
Séminaire Physique Mathématique, Centre de Recherches Mathématiques, Montréal. (2023)
32. *Superintegrable Systems on Moduli Spaces of Flat Connections*,
Symplectic Geometry Seminar, University of Toronto. (Toronto ON, Canada; 2022)
31. *CKP hierarchy and Infinite dimensional Lagrangian Grassmannian*,
Séminaire Physique Mathématique, Centre de Recherches Mathématiques, Montréal. (2022)
30. *Genus two Double Affine Hecke Algebra and its classical limit*,
Wales MPPM Seminar, Cardiff University (Online; 2021)
29. *Superintegrable Systems on Moduli Spaces of Flat Connections*,
Hamiltonian Systems Seminar, University of Arizona and University of Toronto (Online; 2021)
28. *Poisson Geometry of Noncommutative Cluster Algebras*,
Séminaire Physique Mathématique, Centre de Recherches Mathématiques, Montréal. (2021)
27. *Poisson Geometry of Noncommutative Cluster Algebras*,
Cluster Algebra Seminar, Michigan State University. (East Lansing MI, USA; 2020)

26. *Poisson Geometry of Noncommutative Cluster Algebras*,
Special Session on Canonical Bases, Cluster Structures and Non-commutative Birational Geometry, AMS Fall Western Sectional Meeting. (Riverside, CA, USA; 2019)
25. *A q, t -Integrable System on a Genus Two Surface*,
String-Math Seminar, University of California, Berkeley. (Berkeley CA, USA; 2018)
24. *Genus Two Generalization of A_1 spherical Double Affine Hecke Algebra*,
Representation Theory Seminar, University of Illinois at Urbana-Champaign. (Urbana IL, USA; 2018)
23. *Genus Two Generalization of A_1 spherical Double Affine Hecke Algebra*,
Topology Seminar, University of California, Berkeley. (Berkeley CA, USA; 2018)
22. *Genus Two Generalization of A_1 spherical Double Affine Hecke Algebra*,
Lie Groups and Quantum Mathematics Seminar, Rutgers University. (Piscataway NJ, USA; 2018)
21. *Genus Two Generalization of A_1 spherical Double Affine Hecke Algebra*,
Geometry, Symmetry and Physics Seminar, Yale University. (New Haven CT, USA; 2018)
20. *A genus two analogue of the spherical Double Affine Hecke Algebra*,
Lie Groups Seminar, Cornell University. (Ithaca NY, USA; 2018)
19. *Representation theory of A_1 spherical DAHA*,
Informal Mathematical Physics Seminar, Columbia University. (New York NY, USA; 2017)
18. *Genus two analogue of A_1 spherical DAHA*, Combinatorics, Algebra, and Geometry Seminar,
University of Pennsylvania. (Philadelphia PA, USA; 2017)
17. *Modified Double Poisson Brackets*,
Seminar of Mathematical Physics and Algebraic Topology at University of Angers. (Angers, France; 2017)
16. *Modified Double Poisson Brackets*,
Séminaire: Groupes de Lie et espaces des modules,
University of Geneva. (Geneva, Switzerland; 2017)
15. *A q, t -Integrable System on a Genus Two Surface*,
Informal Mathematical Physics Seminar, Columbia University. (New York NY, USA; 2017)
14. *Noncommutative Poisson Geometry*,
Algebra Seminar at Rutgers, The State University of New Jersey. (Piscataway, NJ, USA; 2016)
13. *Noncommutative Integrable Systems*,
Seminar of Mathematical Physics and Algebraic Topology at University of Angers. (Angers, France; 2016)
12. *Noncommutative Inverse Scattering Method for the Kontsevich system*,
Integrable Systems and Quantum Symmetries 2015. (Prague, Czech Republic; 2015)

11. *Noncommutative Inverse Scattering Method for the Kontsevich system*, International Workshop on Mathematical Physics at University of Amsterdam. (Amsterdam, Netherlands; 2015)
10. *Noncommutative Inverse Scattering Method for the Kontsevich system*, AMS Special Session on Integrable Combinatorics (East Lansing, MI, USA; 2015)
9. *HOMFLY polynomial calculus for links and AENV conjecture*, Conference “Knot Theory and Its Applications to Physics and Quantum Computing” (Dallas, TX, USA; 2015)
8. *Noncommutative Inverse Scattering Method for the Kontsevich system*, Representation Theory and Mathematical Physics Seminar at UC Berkeley (Berkeley, CA, USA; 2014)
7. *HOMFLY polynomial calculus for links and AENV conjecture*, International workshop “Group Theory and Knots” (Natal, RN, Brasil; 2014)
6. *HOMFLY polynomial calculus for links and AENV conjecture*, Informal Mathematical Physics Seminar at Columbia University (New York, NY, USA; 2014)
5. *Quantum A-polynomials for knots using q-Zeilberger algorithm*, Experimental Mathematics Seminar at Rutgers, The State University of New Jersey (Piscataway, NJ, USA; 2013)
4. *Differential hierarchy and Z-decomposition of knot polynomials*, International conference “Integrable Systems and Quantum Symmetries - 2013” (Prague, Czech Republic; 2013)
3. *2×2 linear problems for Painlevé equations I-V*, International Workshop “Synthesis of integrabilities arising from gauge-string duality” (Osaka, Japan; 2012)
2. *2×2 linear problems for Painlevé equations I-V*, International conference “Classical and Quantum Integrable Systems - 2012” (Dubna, Russia; 2012)
1. *New integrable systems from the elliptic $SL(N, \mathbb{C})$ top*, International conference “Classical and Quantum Integrable Systems - 2011” (Protvino, Russia; 2011).

Teaching experience

University of Toronto

Winter 2024	Complex Variables (MAT334)
Fall 2023	Linear Algebra I (MAT223)
Fall 2022-Winter 2023	Multivariable Calculus with proofs (MAT237)

University of California, Berkeley

Spring 2021 Lie Groups (Math-251A)
 Fall 2020 Introduction to Abstract Algebra (Math-113)
 Fall 2020 Introduction to Complex Analysis (Math-185)
 Spring 2020 Introduction to Abstract Algebra (Math-113)
 Fall 2019 Elementary Algebraic Topology (Math-142)
 Fall 2019 Introduction to Abstract Algebra (Math-113)
 Spring 2019 Introduction to Complex Analysis (Math-185)
 Spring 2019 Introduction to Real Analysis (Math-104)
 Fall 2018 Introduction to Complex Analysis (Math-185)

Rutgers, The State University of New Jersey

Spring 2018 TA (Workshop Instructor), Calculus III (Math-251)
 Spring 2017 TA (Workshop Instructor), Introduction to Real Analysis (Math-311 Honors)
 Fall 2016 Head TA (Workshop Instructor), Calculus II (Math-152)
 Summer 2016 TA (Workshop Instructor), Abstract Algebra (SPP for Graduate Students)
 Spring 2016 TA (Workshop Instructor), Calculus III (Math-251)
 Fall 2015 TA At Large, Advanced Calculus for Engineering (Math-421)
 Spring 2015 TA (Workshop Instructor), Calculus III (Math-251)
 Fall 2014 TA (Recitation Instructor), Calculus I (Math-135)
 Spring 2014 TA (Grader), Intro to Theory of Functions of Complex Variable (Math-403)
 Fall 2013 TA (Grader), Abstract Algebra I (Math-451)

Volunteer experience in educational projects

Spring 2020 Reading Course Instructor “Introduction to Knot Theory”
 Fall 2019 Reading Course Instructor
 “Mathematical Methods of Classical Mechanics”
 Fall 2014 - Spring 2018 Coordinator of Directed Reading Program in Math
 for Undergraduate Students at Rutgers
 Fall 2015 - Spring 2018 Co-founder and member of organizing committee of online
 International Theoretical Physics Olympiad for undergraduate
 students,
 Fall 2016 DRP Mentor for Srivatsa Tata
 (project: Differential Geometry and Yang-Mills Theory)
 Fall 2013 DRP Mentor for Richard Wong (project: Knot Theory)

Personal Honors and Awards

2017 Rutgers SAS Excellence Fellowship for dissertation work in Mathematics
 2012-2013 ITEP grant for young scientists for 2012-2013 academic year
 2012 Dynasty Foundation Fellowship for young physicists
 2011-2012 ITEP grant for young scientists for 2011-2012 academic year
 2010-2011 ITEP grant for young scientists for 2010-2011 academic year
 2007-2009 Abramov Foundation for Innovative Education grant

Co-organized Seminars

Fall 2018 - Spring 2021 Informal String-Math Seminar at UC Berkeley
Fall 2018 - Spring 2021 Representation Theory and Mathematical Physics Seminar

Co-organized Conferences

June 2018 Non-commutative structures, cluster algebras and applications
University of Angers, France

Referee experience

I have served as a referee in the following mathematical journals:

- International Mathematics Research Notices
- Selecta Mathematica
- Journal of Geometry and Physics
- Documenta Mathematica