

ANTON M. ZEITLIN

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CITIZENSHIP	USA	
CURRENT POSITION	Associate Professor, School of Mathematics, Georgia Institute of Technology, 2024–	
PREVIOUS EMPLOYMENT	Associate Professor, Department of Mathematics, Louisiana State University, 2023–2024; Assistant Professor, Department of Mathematics, Louisiana State University, 2017–2023; J.F. Ritt Assistant Professor, Department of Mathematics, Columbia University: 2012–2017; On leave 2013–2014 academic year as EPDI fellow: September 1, 2013 - February 28, 2014, Max Planck Institute for Mathematics, Bonn, March 1, 2014 - August 31, 2014, Institut des Hautes Etudes Scientifiques, Bures-sur-Yvette.	
RESEARCH INTERESTS	Representation theory with applications to geometry, topology and mathematical physics. In particular: Enumerative geometry, Higher Teichmüller theory, Supergeometry, Quantum groups, Kac-Moody algebras, Loop groups, Homotopy algebras, Conformal field theory, Integrable systems, Algebraic and Geometric structures of Quantum field theory and Gravity	
EDUCATION	Yale University , Ph.D. in Mathematics, 2012; Advisor: Igor Frenkel St. Petersburg State University , St. Petersburg, Russia, M.S., High Energy Physics, 2005	
GRANTS AND AWARDS	NSF RTG Grant (DMS-2231492, co-PI) 2023–2024 NSF Standard Grant (DMS-2203823): 2022–2025 Simons Collaboration Grant: 2018–2022 AMS Simons Travel Grant: 2016–2018 EPDI laureate (IHES): 2012–2014 Yale University: Sterling stipend, 2006–2008 Dynasty Foundation Stipend: 2003–2006 CRDF: Grant No. RUM1-2622-ST-04 (as a member of Group), 2005–2006 RFBR: grant 05-01-00922 (as a member of Group), 2005–2006	
ADVISING PH.D. STUDENTS	Gurleenkaur Nanda (Louisiana State University), 2023–	
CO-ADVISING PH.D. STUDENTS	Andrey V. Smirnov (currently an Associate Professor at UNC-Chapel Hill), Petr P. Pushkar (formerly a postdoc at the University of Toronto and the Institute of Science and Technology Austria)	

ADVISING
UNDERGRADUATE
STUDENTS

Ty J. Brinson (LSU), graduated in 2022,
Andrea Bourque (LSU), graduated in 2022

PUBLICATIONS

Google Scholar profile is available at:
<https://scholar.google.com/citations?user=85Bv2vAAAAAJ&hl=en>.

PUBLISHED AND ACCEPTED PAPERS

54. Superopers revisited, to appear in **Contemporary Mathematics**, arXiv:2307.02675
53. Super Riemann surfaces and fatgraphs (with A.S. Schwarz),
Universe, Special Issue "Quantum Theory and Beyond," 9(9), 384, 2023, arXiv:2307.02706
52. The Zoo of Opers and Dualities (with P. Koroteev),
to appear in **International Mathematical Research Notices**, Volume 2024, Issue 8, pp. 6850-6878, 2024, arXiv:2208.08031
51. On Wronskians and qq -systems,
to appear in: **Contemporary Mathematics**, Proceedings of "Geometric and Algebraic Aspects of Quantum Groups and Related Topics at the University of South Alabama", Nov 2021, arXiv:2208.08018
50. Flat $GL(1|1)$ -connections and fatgraphs (with A. Bourque),
Journal of Geometry and Physics, vol. 191 (2023) 104880, arXiv:2208.08033
49. Opers on the projective line, Wronskian relations, and the Bethe Ansatz (with T.J. Brinson, D. S. Sage), **Journal of Geometry and Physics**, Volume 202, 105222, 2024, arXiv:2112.02711
48. q -Opers, QQ -systems, and Bethe Ansatz II: Generalized Minors (with P. Koroteev),
Journal für die reine und angewandte Mathematik (Crelles Journal), Volume 2023, Number 795 (2023) pp. 271-296, arXiv:2108.0418447
47. 3d Mirror Symmetry for Instanton Moduli Spaces (with P. Koroteev),
Communications in Mathematical Physics, Volume 403, Issue 2, pp. 1005-1068, 2023, arXiv:2105.00588
46. Toroidal q -Opers (with P. Koroteev),
Journal of the Institute of Mathematics of Jussieu (JIMJ), Volume 22, Issue 2 (2023) pp. 581-642 arXiv:2007.11786
45. q -Opers, QQ -systems and Bethe Ansatz (with E. Frenkel, P. Koroteev, D.S. Sage),
to appear in: **Journal of European Mathematical Society (JEMS)**, Volume 26, Number 1, pp. 355-405, 2024, arXiv:2002.07344
44. Super McShane identity (with Y. Huang, R.C. Penner),
to appear in: **Journal of Differential Geometry**, Volume 125, Number 3, pp. 509-551, 2023, IHES: M-19-08, arXiv:1907.09978

43. Super-Teichmüller spaces and related structures (with Ivan C.-H. Ip, Robert C. Penner),
Oberwolfach Report (Report No. 40/2018), Volume 15, Issue 3 (2018) pp. 2486-2489,
arXiv:1811.0993
42. $(SL(N), q)$ -opers, the q -Langlands correspondence, and quantum/classical duality (with P. Koroteev, D.S. Sage),
Communications in Mathematical Physics, Volume 381, Issue 2 (2021), pp. 641-672,
arXiv:1811.09937
41. qKZ/tRS Duality via Quantum K-Theoretic Counts (with P. Koroteev),
Mathematical Research Letters, Volume 28, Number 2, pp. 435-470, 2021, arXiv:1802.04463
40. Quantum K-theory of Quiver Varieties and Many-Body Systems (with P. Koroteev, P.P. Pushkar, A. Smirnov),
Selecta Mathematica New Series, Volume 27, Issue 5, Article: 87, 2021, arXiv:1705.10419
39. Baxter Q-operator from Quantum K-theory (with P. Pushkar, A. Smirnov),
Advances in Mathematics, Volume 360, (2020) 106919, arXiv:1612.08723
38. On Ramond decorations (with I. C.-H. Ip, R.C. Penner),
Communications in Mathematical Physics, Volume 371, Issue 1 (2019), pp. 145-157,
arXiv:1709.06207
37. Decorated Super-Teichmüller Space (with R.C. Penner),
Journal of Differential Geometry, Volume 111, Number 3 (2019), 527-56, arXiv:1509.06302
36. $\mathcal{N} = 2$ Super-Teichmüller Theory (with I. C.-H. Ip, R.C. Penner),
Advances in Mathematics, Volume 336 (2018) pp. 409-454, arXiv:1605.08094
35. Homotopy Algebras of Differential (Super)forms in Three and Four Dimensions (with M. Rocek), **Letters in Mathematical Physics**, 108 (12) (2018) 2669-2694, arXiv:1702.03565
34. On the unitary representations of affine $ax + b$ -group, $\hat{sl}(2, \mathbb{R})$ and their relatives,
AMS Proceedings of Symposia in Pure Mathematics, Volume 92 "Lie Algebras, Lie Superalgebras, Vertex Algebras and Related Topics", pp. 325-355, 2016, arXiv:1509.06072
33. Sigma-models and homotopy algebras,
Journal of Physics, Conference Series, Volume 597, 012074, 2015, arXiv:1509.06067
32. Beltrami-Courant Differentials and G_∞ -algebras,
Advances in Theoretical and Mathematical Physics, Volume 19, Number 6, pp. 1249-1275, 2015, arXiv:1404.3069, IHES: M-14-19
31. Q-operator and fusion relations for $C_q(2)^{(2)}$ (with I. C.-H. Ip),
Letters in Mathematical Physics, Volume 104, Issue 8, pp. 1019-1043, 2014, arXiv:1312.4063, MPIM: 2014-8
30. Superopers on Supercurves, **Letters in Mathematical Physics**, Volume 105, Issue 2, 149-167, 2015, arXiv: 1311.5997, MPIM: 2014-7

29. Supersymmetry and the Modular Double (with Ivan Chi-Ho Ip),
Contemporary Mathematics, Volume 623, pp. 81-97, 2014, arXiv:1304.6787
28. On higher order Leibniz identities in TCFT,
Contemporary Mathematics, Volume 623, pp. 267-280, 2014, arXiv:1301.6382
27. On the continuous series for $\widehat{sl}(2, R)$ (with I.B. Frenkel),
Communications in Mathematical Physics, Volume 326, Issue 1, pp. 145-165, 2014,
arXiv:1210.2135
26. Quantum Group $GL_q(2)$ and Quantum Laplace Operator via Semi-infinite Cohomology (with I.B. Frenkel), **Journal of Noncommutative Geometry**, Volume 7, Issue 4, pp. 1007-1026, 2013, arXiv:1110.1696
25. Homotopy Relations for Topological VOA, **International Journal of Mathematics**, Volume 23, 1250012 (2012), arXiv:1104.5038
24. Unitary representations of a loop $ax+b$ group, Wiener measure and Gamma-function,
Journal of Functional Analysis, Volume 263, Issue 3, pp. 529-548, 2012, arXiv:1012.4826
23. Quasiclassical Lian-Zuckerman Homotopy Algebras, Courant Algebroids and Gauge Theory,
Communications in Mathematical Physics, Volume 303, Number 2, pp. 331-359, 2011,
arXiv:0910.3652
22. Quantum Group as Semi-infinite Cohomology (with I.B. Frenkel),
Communications in Mathematical Physics, Volume 297, Number 3, pp. 687-732, 2010,
arXiv:0812.1620
21. Beta-Gamma systems and the deformations of the BRST operator,
Journal of Physics A: Mathematical and Theoretical, Volume 42, Number 35, 355401, 2009, arXiv:0904.2234
20. Conformal Field Theory and Algebraic Structure of Gauge Theory,
Journal of High Energy Physics, JHEP03(2010)056, 2010, arXiv: 0812.1840
19. SFT-inspired Algebraic Structures in Gauge Theories,
Journal of Mathematical Physics 50, Issue 6, 063501, 2009, arXiv:0711.3843
18. BV Yang-Mills as a Homotopy Chern-Simons via SFT,
International Journal of Modern Physics A 24, Issue 7, 1309-1331, 2009, arXiv:0709.1411
17. Homotopy Lie Superalgebra in Yang-Mills Theory,
Journal of High Energy Physics, JHEP09(2007)068, 2007, arXiv:0708.1773
16. Formal Maurer-Cartan Structures: from CFT to Classical Field Equations,
Journal of High Energy Physics, JHEP12(2007)098, 2007, arXiv:0708.0955

15. Perturbed Beta-Gamma Systems and Complex Geometry,
Nuclear Physics B, Volume 794, Issue 3[PM], pp. 381-401, 2008, arXiv:0708.0682
14. BRST, Generalized Maurer-Cartan Equations and CFT, **Nuclear Physics B**, Volume 759, Issue 3, pp. 370-398, 2006, hep-th/0610208
13. On First Order Formalism in String Theory (with A.S. Losev, A. Marshakov),
Physics Letters B, Volume 633/2-3 pp. 375-381, 2006, hep-th/0510065
12. Quantization of N=2 supersymmetric KdV Hierarchy,
Theoretical and Mathematical Physics, v. 147, n. 2, pp. 303-314, 2006 (in russian);
Engl. transl.: Theoretical and Mathematical Physics, v. 147, n. 2, pp. 698-708, 2006, hep-th/0606129
11. Quantum supersymmetric Toda-mKdV hierarchies (with P. Kulish),
Nuclear Physics B, Volume 720, Issue 3, pp. 289-306, 2005, hep-th/0506027
10. Quantization of N=1 and N=2 SUSY Korteweg-de Vries models (with P. Kulish),
in: "Problems of Mathematical Physics and Applied Mathematics", **Ioffe Physico-Technical Institute**, pp. 80-100, St. Petersburg, 2005
9. Superconformal field theory and SUSY N=1 KdV hierarchy II: the Q-operator (with P. Kulish),
Nuclear Physics B, Volume 709, Issue 3, pp. 578-591, 2005, hep-th/0501019
8. Integrability of Superconformal Field Theory and SUSY N=1 KdV,
in String Theory: from Gauge Interactions to Cosmology, NATO Advanced Study Institute,
Proc. of Cargese Summer School, 2004, NATO Science Series II: Mathematics, Physics and Chemistry, v. 208, 393-396, Springer, 2005, hep-th/0501150
7. Quantum inverse scattering method and (super)conformal field theory (with P. Kulish),
Theoretical and Mathematical Physics, v. 142, n. 2, pp. 252-264, 2005 (in russian);
Engl. transl.: Theoretical and Mathematical Physics, v. 142, n. 2, pp. 211-221, 2005, hep-th/0501018
6. Superconformal Field Theory and SUSY N=1 KdV Hierarchy I: Vertex Operators and Yang-Baxter Equation (with P. Kulish),
Physics Letters B, Volume 597, Issue 2, pp. 229-236, 2004, hep-th/0407154
5. Quantization of integrable models with hidden symmetries: super-KdV equation (with P. Kulish),
Journal of Modern Optics, Volume 51, Numbers 6-7, pp. 1107 - 1108, 2004
4. Super-KdV equation: classical solutions and quantization (with P. Kulish),
Proceedings in Applied Mathematics and Mechanics (PAMM), Volume 4, Issue 1, pp. 576 - 577, Wiley InterScience, 2004

3. Integrable Structure of Superconformal Field Theory and Quantum super-KdV Theory (with P. Kulish),
Physics Letters B, Volume 581, Issues 1-2, pp. 125-132, 2004, hep-th/0312159
2. Superconformal field theory and quantum inverse scattering method (with P. Kulish),
in: Symmetries in Gravity and Field Theory (eds. by V. Aldaya, J.M. Cervero, Y.P. Garcia),
Salamanca University Press, pp. 435-447, 2004
1. Group Theoretical Structure and Inverse Scattering Method for super-KdV Equation (with P. Kulish),
Zapiski Nauchnih Seminarov POMI (Steklov Institute), vol. 291, 185-205, 2002 (in russian);
Engl. transl.: **Journal of Mathematical Sciences** (Springer/Kluwer), v. 125, n. 2, 203-214,
2005, hep-th/0312158

CONFERENCE/
SEMINAR
ORGANIZATION

Co-organizer of “Representation Theory and Mathematical Physics Seminar” at LSU (2021-2024);

Co-organiser of the Programs and Workshops at the Simons Center of Geometry and Physics:

“From Representation Theory to Mathematical Physics and Back”, May 31-June 4, 2022;

“Geometric and Representation-Theoretic Aspects of Quantum Integrability”, August 29 - October 21, 2022;

“Geometric Representation Theory, Integrability, and Supersymmetric Gauge Theories”, September 26 - September 30, 2022.

INVITED TALKS:
CONFERENCES

“On the BV double of a Courant Algebroid”, International Conference on Field Theory and Topology, University of Notre Dame, Notre Dame, USA, June 10-14, 2024.

“Quantum/classical duality and geometry”, AMS Special Session on Categorical Representations, Quantum Algebra, and Related Topics, University of South Alabama, USA, 13-18 October, 2023.

“Geometric realizations of Bethe equations”, Mini-course, CIME Summer school, “Enumerative geometry, quantisation and moduli spaces”, Cetraro, Italy, 4-8 September, 2023.

“Super-Teichmüller spaces: coordinates and applications”, Simons Center for Geometry and Physics, Workshop: SuperGeometry and SuperModuli: March 27, 2023.

“Bethe ansatz in the geometric setting”, Simons Program: Integrability, enumerative geometry and quantization, Simons Center for Geometry and Physics, USA, September 2, 2022.

“ \hbar -opers and the geometric approach to the Bethe ansatz”, Workshop “From Representation Theory to Mathematical Physics and Back”, Simons Center for Geometry and Physics, USA, May 31 - June 4, 2022.

“Hyperbolic supergeometry and super-Teichmüller spaces”, “Workshop on Supergeometry and Bracket Structures in Mathematics and Physics”, Fields Institute, Toronto, Canada, March 21, 2022.

“On q-Langlands correspondence, Bethe equations, and Applications”, AMS Special Session on Integrability, Symmetry and Physics, Purdue University, USA, March 27, 2022.

“q-opers and the geometric approach to the Bethe ansatz equations”, Conference “Quantum Curves, Integrability and Cluster Algebras”, MATRIX Institute, The University of Melbourne, Australia, December 17, 2021.

“q-Operators and Applications”, AMS Special Session on Geometric and Algebraic Aspects of Quantum Groups and Related Topics, University of South Alabama, USA, November 20, 2021.

“Hyperbolic supergeometry, super-Teichmueller spaces, and applications”, Conference “Teichmueller Theory: Classical, Higher, Super and Quantum”, Centre International de Rencontres Mathematiques –Marseille Luminy, Marseille, France, October 8, 2020.

Lectures: “Introduction to the theory of super Riemann surfaces”, “ $N = 1$ and $N = 2$ super-Teichmueller theory”, “Super-Teichmueller theory: some recent results”; Workshop “Super-Riemann surfaces and related topics”, University of Tokyo, Japan, December 2-4, 2019.

“The geometric meaning of Bethe equations”, Special Session on Geometric Methods in Representation Theory, AMS Fall Western Sectional Meeting, University of California, Riverside, USA, November 9, 2019.

“Decorated super-Teichmueller spaces and super-Ptolemy relations”, Special Session on Canonical Bases, Cluster Structures and Non-commutative Birational Geometry; AMS Fall Western Sectional Meeting, University of California, Riverside, USA, November 9, 2019.

“Super-Teichmueller spaces and related structures”, Oberwolfach workshop: New Trends in Teichmueller Theory and Mapping Class Groups, 2 September - 8 September, 2018.

“Towards the continuous analogue of Kazhdan-Lusztig correspondence”, Conference “Vertex Algebras and Quantum Groups”, Banff International Research Station, Alberta, Canada, February 7-12, 2016.

“Superopers and supercurves”, Conference “Representation Theory and Related Topics”, University of Connecticut, USA, May 11-12, 2015.

“Beltrami-Courant Differentials and Homotopy Gerstenhaber algebras”, The 30th International Colloquium on Group Theoretical Methods in Physics Ghent University in Ghent, Belgium, 14-18 July, 2014.

“Superopers on Supercurves”, 567th WE-Heraeus Seminar “Integrable Lattice Models and Quantum Field Theories” Physikzentrum Bad Honnef, Germany, June 28 - July 2, 2014.

“Conformal invariance for sigma models, Courant algebroids and homotopy algebras”, Higher Geometric Structures along the Lower Rhine III October 17-18, 2013; Utrecht University, The Netherlands

“On the continuous series for $\widehat{sl}(2, R)$ “Algebraic structures of stringy sigma models and homotopy algebras” AMS Sectional Meeting October 13-14, 2012; Tulane University, New Orleans, LA; Session on Geometric and Algebraic Aspects of Representation Theory, Session on Quantum Groups and Noncommutative Algebraic Geometry

“Homotopy Relations for Topological VOA”, AMS Sectional Meeting, Cornell University, Ithaca, NY, September 10-11, 2011 ;
Special Session on Kac-Moody Lie Algebras, Vertex Algebras, and Related Topics.

“Homotopy BV algebras, Courant algebroids and String Field Theory”, AMS Sectional Meeting, Richmond, VA, November 6-7, 2010; Special Session on Kac-Moody Algebras, Vertex (Operator) Algebras, and Applications.

INVITED TALKS:
SEMINARS &
COLLOQUIA

“q-Opers and applications”, Algebra Seminar, University of Oregon, Eugene, USA, November 14, 2023.

“Geometric wonders of classical and quantum integrable systems” , Colloquium, University of Oregon, Eugene, USA, November 13, 2023.

“Geometric wonders of classical and quantum integrable systems”, Department Colloquium, Department of Mathematics, University of California San Diego, January 30, 2023.

“Geometric wonders of classical and quantum integrable systems”, Department of Mathematics, Rutgers University, December 22, 2022.

“Super-Teichmueller spaces and Penner coordinates”, Colloquium, University of Toledo, USA, April 8, 2022.

“Spin chains and geometric structures”, ”Integrable Probability, Classical and Quantum Integrability” (PIICQ), France, February 28, 2022.

“q-Opers, QQ-Systems, and Bethe Ansatz”, Informal Mathematical Physics Seminar, Columbia University in the city of New York, USA, November 17, 2020.

“Super-Teichmueller spaces: an introduction and some results”, Moduli Spaces seminar, School of Mathematics and Statistics at the University of Melbourne, Australia, September 23, 2020.

“Geometry of Bethe Equations and q-Opers”, Informal string-math seminar, University of California, Berkeley, USA, June 8, 2020.

“Super-Teichmueller spaces: old and new results”, University of Virginia, Geometry seminar, USA, February 25, 2020.

“Super-Teichmueller spaces and all that”, Department of High Energy and Particles Physics, St. Petersburg State University, Russia, December 24, 2019.

“The Bethe ansatz from geometry” MS Seminar (Mathematics - String Theory), Kavli Institute for the Physics and Mathematics of the Universe (IPMU), Tokyo, Japan, December 5, 2019.

“Homotopy Gerstenhaber algebras, Courant algebroids, and Field Equations”, Tuesday Seminar on Topology, University of Tokyo, Japan, December 3, 2019.

“q-opers, QQ-systems, and q-Langlands correspondence”, Physically inspired mathematics seminar, The University of North Carolina at Chapel Hill, USA, November 15, 2019.

“Super-Teichmueller spaces and related structures”, Subfactor Seminar, Vanderbilt University, Nashville, USA, October 4, 2019.

“Super Teichmüller Space and the McShane Identity”, Séminaire de Mathématiques, IHES, France, July 17, 2019.

“Field Equations, Homotopy Gerstenhaber Algebras and Courant Algebroids”, Representation Theory and Mathematical Physics Seminar, UC Berkeley, April 16, 2019.

“Quantum integrable systems via quantum K-theory”, Math-Physics Joint Seminar, University of Pennsylvania, USA, March 14, 2019.

“Hidden Homotopy Symmetries of Einstein Field Equations”, Informal Geometry and Topology Seminar, Louisiana State University, USA, February 6, 2019.

“Super-Teichmüller Spaces, Spin Structures, Penner Coordinates, and Applications”, Special Seminar, Columbia University in the city of New York, USA, February 1, 2019.

“Thoughts on Supermoduli”, Harmonic Analysis Seminar, Louisiana State University, November 8, 2018.

“Super-Teichmueller spaces and related structures”, Thematic Program on Teichmüller Theory and its Connections to Geometry, Topology and Dynamics, The Fields Institute for Research in Mathematical Sciences, July 17, 2018.

“Super-Teichmueller Theory”, University of California, Davis, QMAP Seminar, April 6, 2018.

“Quantum integrable systems and Enumerative Geometry”, Colloquium, Michigan State University, February 5, 2018.

“Quantum integrable systems and Enumerative Geometry”, Harmonic Analysis Seminar, Louisiana State University, December 6, 2017.

“Quantum equivariant K-theory and integrability”, Enumerative Geometry Seminar, Columbia University, May 8, 2017.

“Quantum Equivariant K-theory and Quantum Spin Chains”, University of California, Davis, QMAP Seminar, March 17, 2017.

“Generalized Teichmueller Spaces, Spin Structures and Ptolemy Transformations”, Louisiana State University, February 6, 2017.

“Generalized Teichmüller Spaces, Spin Structures and Ptolemy Transformations”, Special Mathematics Colloquium, University of Arizona, February 2, 2017.

“Generalizations of Teichmüller space”, Department Mathematics and Statistics, University of Massachusetts Amherst, December 15, 2016.

“Generalizations of Teichmüller Space”, Special Department of Mathematics Colloquium, Purdue University, December 6, 2016.

“Super-Teichmüller spaces and new cluster transformations”, Northeastern University, December 1, 2016.

“Penner coordinates on super-Teichmueller spaces”, Cluster Algebras Seminar, University of Notre Dame, November 7, 2016.

“Penner coordinates on super-Teichmueller spaces”, UC Berkeley, October 28, 2016.

“N=1 and N=2 Super-Teichmüller spaces”, University of Connecticut, October 7, 2016.

“Decorated super-Teichmüller space”, “Einstein field equations, Courant algebroids and Homotopy algebras”, Symplectic Seminar, University of Toronto, September 26-27, 2016.

“Super-Teichmüller Theory”, “Homotopy Gerstenhaber algebra as a hidden structure within Einstein equations, Centre for Quantum Geometry of Moduli Spaces, Aarhus University, June 28-30, 2016.

“Einstein equations, Beltrami-Courant differentials and Homotopy Gerstenhaber algebras”, University of Nottingham, May 25-27, 2016.

“Coordinates on the decorated super-Teichmüller spaces”, Algebra and Combinatorics Seminar, North Carolina State University, April 18, 2016.

“New cluster transformations and super-Teichmüller spaces, Physically Inspired Mathematics Seminar”, The University of North Carolina at Chapel Hill, April 15, 2016.

“Sigma Models and Beltrami-Courant Differentials”, Mathematics Colloquia and Seminars, String Theory, University of California, Davis, USA, May 27, 2014.

“Towards the unitary representations of affine $\mathfrak{sl}(2, \mathbb{R})$ ”, Symplectic Geometry, Gauge Theory, and Categorification Seminar, Columbia University in the city of New York, USA, April 25, 2014.

“Continuous series of affine $\mathfrak{sl}(2, \mathbb{R})$, modular double of quantum group and all that”, Institut des Hautes Etudes Scientifiques, Séminaire de Mathématiques, Serie de “Courts Exposes”, Mardi 1er avril 2014.

“Generalized Beltrami differentials, homotopy Gerstenhaber algebras and sigma-models”, Symplectic Geometry, Gauge Theory, and Categorification Seminar, Columbia University in the City of New York, USA, February 21, 2014.

“On the continuous series for affine $\mathfrak{sl}(2, \mathbb{R})$ ”, Emmy-Noether-Seminar, Emmy-Noether Zentrum, Department Mathematik, Friedrich-Alexander Universität Erlangen-Nürnberg, Germany, February 7, 2014.

“Continuous series of affine $\mathfrak{sl}(2, \mathbb{R})$ and beyond”, Institute for Theoretical Physics, University of Cologne, Germany, January 16, 2014.

“Generalized Beltrami differentials and homotopy Gerstenhaber algebras”, Higher Differential Geometry Seminar, Max Planck Institute for Mathematics, Bonn, Germany, December 11, 2013.

“Superopers on Supercurves”, Working Group Algebra, Geometry and Quantization, University of Luxembourg, December 3, 2013.

“On the construction of the continuous series of affine $\mathfrak{sl}(2, \mathbb{R})$ ”, MPI-Oberseminar, Max Planck Institute for Mathematics, Bonn, Germany, November 7, 2013.

“Classical Field Equations, Courant Algebroids and Vertex Algebras”, Algebra Seminar, Temple University, Philadelphia, November 19, 2012.

“Continuous series of affine $\mathfrak{sl}(2, \mathbb{R})$ and its close friends”, Lie Group/Quantum Mathematics Seminar, Rutgers University, November 9, 2012.

“On the continuous series for affine $\mathfrak{sl}(2, \mathbb{R})$ ”, New York Applied Algebra Colloquium, CUNY Graduate Center, New York, October 19, 2012.

“Lian-Zuckerman homotopy algebras, Courant/Vertex algebroids and beta-functions of string theory”, Columbia Symplectic Geometry, Gauge Theory, and Categorification Seminar, Columbia University, New York, October 28, 2011.

“Loop $ax+b$ group, gamma-function and modular double”, Columbia Informal Categorification and Representation Theory Seminar, Columbia University, New York, October 27, 2011.

“Quantum group as semi-infinite cohomology”, Columbia Informal Categorification and Representation Theory Seminar, Columbia University, New York, October 25, 2011.

“Introduction to Vertex Operator Algebras”, Lectures at Columbia University, New York, July 6-9, 2011.

“Homotopy relations for topological vertex operator algebras”, Seminar “Infinite Dimensional Algebraic Geometry”, Yale University, New Haven, CT, June 9, June 16, 2011.

“From Lian-Zuckerman Algebras to the Algebraic Structure of Classical Field Equations”, Lie Group/Quantum Mathematics Seminar, Rutgers University, January 29, 2010.

“Twistor formalism for 10d super Yang-Mills and the Berkovits complex”, Seminar “Infinite Dimensional Algebraic Geometry”, Yale University, New Haven, CT, May 27, 2009.

“The Berkovits complex and super-Yang-Mills”, Seminar “Infinite Dimensional Algebraic Geometry”, Yale University, New Haven, CT, May 21, 2009.

“Algebraic structures related to $D=10$ $N=1$ SUSY Yang-Mills theory”, Seminar “Infinite Dimensional Algebraic Geometry”, Yale University, New Haven, CT, April 23, 2009.

“Field Equations from Homotopy Algebras of CFT”,
“Braided Vertex Algebras, Semi-infinite Cohomology and Quantum Group”,
Session on Homotopical Algebra with Applications to Mathematical Physics, Session on Kac-Moody Algebras, Vertex Algebras, Quantum Groups, and Applications,
AMS Sectional Meeting, Raleigh, NC, April 4-5, 2009.

Special Minicourse “Homotopy Structure of Gauge Theory”, Simons Center For Geometry And Physics, Stony Brook University, Stony Brook, NY, March 20-21, 2008.

“BRST, CFT and Classical Field Equations”, Math-Physics Joint Seminar, University of Pennsylvania, Philadelphia, PA, February 29, 2008.

“Gauge Theory and Homotopy Lie Algebras”, Deformation Theory Seminar, University of Pennsylvania, Philadelphia, PA, February 27, 2008.

“Gauge Theories and Homotopy Lie Algebras”, Seminar “Infinite Dimensional Algebraic Geometry”, Yale University, New Haven, CT, January 31, 2008.

“BV Yang-Mills as a Homotopy Chern-Simons”, informal lunch seminar of Particle Theory Group, Yale University, New Haven, CT, December 6, 2007.

“Representations of quantum superalgebras and integrable structures of superconformal field theory”, Seminar on Department of High Energy and Elementary Particles Physics, Physics Faculty, St. Petersburg State University, Russia, May 22, 2007.

“CFT and representations of quantum (super)algebras: quantization of (super)KdV hierarchies”, Seminar “Geometry, Symmetry and Physics”, Yale University, New Haven, CT, November 30, 2006.

“Quantum Toda-mKdV Hierarchies Based on Lie Superalgebras & On the First Order Formalism in String Theory”, High energy theory special seminar, Weizmann Institute of Science, Israel, May 18, 2005.