

Gus Schrader

- CONTACT INFORMATION 225 Lunt Hall *E-mail:* gus.schrader@northwestern.edu
Department of Mathematics *Website:* www.math.northwestern.edu/~gus
Northwestern University
Evanston, IL 60208 USA
- RESEARCH INTERESTS Quantum groups, cluster algebras, quantization of character varieties and higher Teichmüller theory, integrable systems, geometric representation theory, TQFT.
- EMPLOYMENT **Northwestern University**, Evanston, IL, USA
Assistant Professor, Department of Mathematics
July 2021 – present
- Columbia University**, New York, NY, USA
Ritt Assistant Professor, Department of Mathematics
August 2017 – June 2021
- EDUCATION **University of California**, Berkeley, CA, USA
Ph.D, May 2017
Dissertation Title: “Quantum groups, character varieties and integrable systems”
Advisor: Nicolai Reshetikhin
- University of Melbourne**, Parkville, Victoria, Australia
B.Sc. (Hons), Mathematics, December 2009
- PUBLICATIONS AND PREPRINTS G. Schrader and A. Shapiro, *A cluster realization of the R-matrix from quantum character varieties*, *Inventiones mathematicae*, 2019, DOI 10.1007/s00222-019-00857-6
- D. Jordan, I. Le, G. Schrader, and A. Shapiro. . *Quantum decorated character stacks*. arXiv preprint [arXiv:2102.12283](https://arxiv.org/abs/2102.12283) (2021).
- G. Schrader and A. Shapiro, *K -theoretic Coulomb branches of quiver gauge theories and cluster varieties*, [arXiv:1910.03186](https://arxiv.org/abs/1910.03186) (2019).
- G. Schrader and A. Shapiro. *On b-Whittaker functions*. [arXiv:1806.00747](https://arxiv.org/abs/1806.00747)
- N. Reshetikhin and G. Schrader. *Superintegrability of Generalized Toda Models on Symmetric Spaces*. *International Mathematics Research Notices*, 2018 ([rnz160](https://doi.org/10.1093/imrn/rnz160)).
- G. Schrader and A. Shapiro, *Continuous tensor categories from quantum groups I: algebraic aspects*, [arxiv:1708.08107](https://arxiv.org/abs/1708.08107)
- G. Schrader and A. Shapiro, *Dual pairs of quantum moment maps and doubles of Hopf algebras*, *Journal of Algebra*, Vol. 492, p. 74–89
- G. Schrader and A. Shapiro, *Quantum groups, quantum tori, and the Grothendieck-Springer resolution*, *Advances in Mathematics*, Volume 321, p. 431-474

G. Schrader, *Integrable Systems from the Classical Reflection Equation*, Int Math Res Notices (2016) 2016 (1): 1-23

G. Schrader, *Algebraic integrability of the classical XXZ spin chain with reflecting boundary conditions*, arXiv:1408.5200

Q. Ren, S. Sam, G. Schrader and B. Sturmfels, *The Universal Kummer Threefold*, Experimental Mathematics Vol. 22 , Iss. 3, 2013: 327-362

O. Foda, G. Schrader, *XXZ Scalar Products, Miwa Variables and Discrete KP*, New Trends in Quantum Integrable Systems (2010): 61-80

INVITED TALKS AND LECTURE SERIES Clusters and Geometry Seminar, Yale, October 2020.

Representation Theory Seminar, Hong Kong University of Science and Technology, October 2020.

Cluster Algebras 2020, virtual conference, August 2020.

Skoltech Center for Advanced Studies Representation Theory Seminar, June 2020

Quiver varieties and DT invariants, Institut Henri Poincaré, Paris, February 2020

Lie and Jordan Algebras, Chengdu, January 2020

Integrability, Combinatorics and Representations, Presqu'île de Giens, September 2019

Cluster Algebras 2019, Research Institute for Mathematical Sciences, Kyoto University, June 2019

Summer School on Geometric representation theory and low-dimensional topology, University of Edinburgh, June 2019

Workshop on Faces of Integrability, Centre de Recherches Mathématiques, May 2019

Cluster structures in geometry, physics, combinatorics, and representation theory, University of Notre Dame's Jerusalem Global Getaway, Tantur Ecumenical Institute, December 2018

Hodge Seminar, University of Edinburgh, November 2018

Summer School on Geometric Representation Theory, Institute of Science and Technology, Austria, July 2018

Non-commutative structures, cluster algebras and applications, Université d'Angers, June 2018

Representation Theory, Mathematical Physics, and Integrable Systems, Centre International de Rencontres Mathématiques, June 2018

Lecture serie *Moduli spaces of local systems and tensor products of positive representations*, Infinite Analysis 18, Nagoya University, May 22–24 2018.

Cluster Algebras and Mathematical Physics, Michigan State University, May 2018.

RIMS Representation theory seminar, Kyoto, February 16 2018

MATRIX workshop *Geometric R-matrices: from geometry to probability*, December 2017

ZMP Colloquium, DESY Hamburg, November 2017.

Gone Fishing, Université de Notre Dame, May 2017

Integrable Models in Statistical Mechanics, Limit Shapes and Combinatorics, Euler International Mathematical Institute, St. Petersburg, August 2017

Berkeley-Tokyo Workshop on Quantum Field Theory and Subfactors, Berkeley, November 2016

University of Edinburgh Algebra seminar, June 2016

Lecture series *Geometric construction of Yangians and reflection algebras, after Maulik and Okounkov*, Université de Paris 7, April 2016

Berkeley-Tokyo winter school on Geometry, Topology and Representation Theory, February 2016

Center for the Quantum Geometry of Moduli Spaces Nielsen Retreat, Aarhus, November 2015

Oberwolfach Mini Workshop on Coideal Subalgebras of Quantum Groups, February 2015

Loyola University Algebra Seminar, November 2014

RTG workshop on “Tensors and their geometry in high dimensions,” Berkeley, September 2012

SEMINARS
ORGANIZED

UC Berkeley Research Training Group (RTG) in Geometry and Topology Seminar, 2015-2016 (co-organized with A. Shapiro in 2015)

UC Berkeley GRASP (Geometry, Representations and Some Physics) seminar, 2013-2015 (co-organized with A. Shapiro and H. Williams in 2013, and with A. Shapiro in 2014-15)

UC Berkeley Student Integrable Systems Seminar, Fall 2014 (co-organized with A. Shapiro)

TEACHING

Lecturer, Columbia University

Linear Algebra (150+ students), Fall 2017, Spring 2018, Fall 2018, Spring 2020.

Introduction to Higher Mathematics, Spring 2018, Fall 2019.

Modern Algebra I, Spring 2019

Modern Algebra II, Fall 2019

Graduate Student Instructor, UC Berkeley

Classes taught include Linear Algebra and Differential Equations, and Math 1A (introductory calculus)