Curriculum Vitae
Harold Williams

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Education/Employment

2014 –		RTG Instructor of Mathematics, University of Texas, Austin
2014	Ph.D.	University of California, Berkeley, Mathematics (advisor: Nicolai Reshetikhin)
2008	B.S.	University of Texas, Austin, Mathematics (Summa Cum Laude)
2008	B.A.	University of Texas, Austin, Music (Summa Cum Laude)

Scientific Awards

2015 –	NSF Mathematical Sciences Postdoctoral Research Fellowship (sponsoring scientist: Andrew Neitzke)
2014	Kenneth Ribet and Lisa Goldberg Award in Algebra (UC Berkeley Dissertation Award)

Research Interests

Representation theory, mathematical physics, integrable systems, cluster algebras, geometry, combinatorics.

Publications

Submitted

1. *Toda Systems, Cluster Characters, and Spectral Networks.* arXiv:math.RT/1411.3692

Peer-reviewed Journal Articles

2. *Q-Systems, Factorization Dynamics, and the Twist Automorphism.* To appear in International Mathematics Research Notices. arXiv:math.RT/1310.6624
3. *Cluster Ensembles and Kac-Moody Groups*, Advances in Mathematics, Volume 247, 10 November 2013, pp. 1–40. arXiv:math.CO/1210.2533
4. *Double Bruhat Cells in Kac-Moody Groups and Integrable Systems*, Letters in Mathematical Physics, Volume 103 Issue 4, April 2013, pp. 389–419. arXiv:math.QA/1204.0601

Conference and Seminar Talks

Invited Talks

—— Apr	Northeastern University: Legendrian Knots and Cluster Varieties
—— Apr	Boston College: Legendrian Knots and Cluster Varieties
—— Mar	AMS Central Sectional Meeting, Michigan State University (Special Session on Integrable Combinatorics): Legendrian Knots and Cluster Varieties
—— Jan	UNAM, Mexico City (US-Mexico Meeting on Noncommutative Algebra and Representation Theory): Toda Systems, Cluster Characters, and Spectral Networks
—— Jan	Joint Mathematics Meetings, San Antonio (Special Session on Cluster Algebras): Toda Systems, Cluster Characters, and Spectral Networks
2014 Dec	Korea Institute for Advanced Study (Workshop on Strings, Quivers, and Cluster Algebras in Mathematical Physics): Toda Systems, Cluster Characters, and Spectral Networks
—— Nov	Perimeter Institute for Theoretical Physics (Workshop on Mathematical Physics): Toda Systems, Cluster Characters, and Spectral Networks

—— Oct University of California, Berkeley: Cluster Integrable Systems, Quiver Representations, and Line Operators
—— Sept Kavli IPMU, Tokyo: Relativistic Integrable Systems, Quiver Representations, and Line Operators
—— Sept Nagoya University (Summer School on Cluster Algebras and Mathematical Physics): Toda Systems, Quiver Representations, and $\mathcal{N} = 2$ Field Theory [3 lectures]
—— June Independent University of Moscow (Workshop on Combinatorics of Moduli Spaces, Cluster Algebras, and Topological Recursion) Integrable Systems, Canonical Bases, and $\mathcal{N} = 2$ Gauge Theory
—— May Northwestern University (Workshop on Representation Theory, Integrable Systems, and Quantum Fields): Integrable Systems, Canonical Bases, and $\mathcal{N} = 2$ Field Theory [3 lectures]
—— May University of Hong Kong: Integrable Systems, Canonical Bases, and $\mathcal{N} = 2$ Field Theory [3 lectures]
—— Apr Northwestern University (Geometry and Physics Seminar): Integrable Systems and Canonical Bases
—— Feb Stanford University (Workshop on Lie Groups, Lie Algebras, and their Representations): Quivers and Toda Systems
—— Jan University of Texas, Austin: Seiberg-Witten Curves and Double Bruhat Cells
2013 Dec Oberwolfach (Workshop on Cluster Algebras and Related Topics) Q-Systems, Double Bruhat Cells, and $\mathcal{N} = 2$ Yang-Mills
—— Nov University of Illinois, Urbana-Champaign: Q-Systems, Factorization Dynamics, and Twisting
—— Oct University of Bonn: Q-Systems, Factorization Dynamics, and Twisting
—— Oct University of Strasbourg: Q-Systems, Factorization Dynamics, and Twisting
—— Sept University of California, Berkeley (Representation Theory Seminar): Q-Systems, Factorization Dynamics, and Twisting
—— June UNAM, Mexico City (Workshop on Cluster Algebras and BPS Invariants): Seiberg-Witten Curves and Cluster Algebras [3 lectures]
2012 Oct Tulane (AMS Southeastern Sectional Meeting): Cluster Ensembles and the Chamber Ansatz
—— Sept Aarhus University (Algebra Seminar): Cluster Ensembles and the Chamber Ansatz
—— July Maui (Subfactors in Maui): From Planar Algebras to Loop Groups via Triple Crossings
—— Apr University of California, Berkeley (Combinatorics Seminar): Loop Groups and Cluster Integrable Systems

Teaching/Mentoring Activities

Graduate Student Mentorship

2014 June Teaching Assistant for AMS Mathematics Research Community on Cluster Algebras, Snowbird, UT

UT Austin

2015 Spring Differential Calculus (Math 408K)
2014 Fall Differential and Integral Calculus II (Math 408D)

UC Berkeley (Graduate Student Instructor)

2011 Spring Analytic Geometry and Calculus (Math 16A)
2010 Spring Calculus II (Math 1B)
2009 Fall Calculus I (Math 1A)
2009 Spring Calculus II (Math 1B)
2008 Fall Calculus II (Math 1B)

Teaching Awards

2011 Spring Outstanding Graduate Student Instructor (UC Berkeley)

Seminars and Conferences Organized

2010 – Geometry, Representations, and Some Physics (GRASP) Student Seminar, UC Berkeley
2013 Spring Seiberg-Witten Theory Seminar, UC Berkeley
2010 – 2012 Career Talks Lecture Series, UC Berkeley
2011 Fall Representation Theory, Geometry, and Combinatorics RTG Conference, UC Berkeley