

Axel Iván Sáenz Rodríguez

CONTACT INFORMATION	Department of Mathematics University of Virginia 141 Cabell Drive, Kerchof Hall P.O. Box 400137 Charlottesville, VA 22904 USA	Mobile: +1-918-760-3408 E-mail: ais6a@virginia.edu Website: faculty.virginia.edu/saenz/
RESEARCH INTERESTS	My primary research interests are in integrability. I consider integrability from two perspectives, probability and geometry, and the connections between the two points of view. More specifically, I am interested in problems in the areas of the KPZ universality and the Eynard-Orantin topological recursion. Currently, I am working on the periodic ASEP model and the Painlevé equations.	
ACADEMIC APPOINTMENTS	Postdoctoral Researcher Department of Mathematics, University of Virginia • Mary Ann Pitts Postdoctoral Fellow	August 2016 to present
EDUCATION	University of California, Davis , Davis, CA Ph.D., Mathematics, June 2016 • Adviser: Professor Motohico Mulase • Area of Study: Integrable Systems, Complex Algebraic Geometry, Mathematical Physics Columbia University , New York, NY B.A., Applied Mathematics, May 2011 Budapest Semesters in Mathematics , Budapest, Hungary Study Abroad, Spring Semester 2010	
PUBLICATIONS	[1] Iwaki, K., and Saenz, A. Quantum curve and the first Painlevé equation. <i>SIGMA</i> 12 (2016), 011, 24 pages. [2] Brattain, E., Do, N., and Saenz, A. The completeness of the bethe ansatz for the asep model with periodic boundary conditions. arXiv:1511.03762v1 (2015). [3] Iwaki, K., Marchal, O., and Saenz, A. Painlevé equations, topological type property and reconstruction by the topological recursion. arXiv:1601.02517 (2016).	
AWARDS	• Kavli Institute for Theoretical Physics Graduate Fellow, January - July 2016 • Dissertation Year Fellowship, 2015 -2016 • Graduate Research Mentorship Fellowship, 2014 -2015 • Graduate Assistance in Areas of National Need (GAANN) Fellowship, 2012 -2013	
TALKS AND PRESENTATIONS	• Integrability and Contour Formulas for the ASEP Model on a Ring “Topological Recursion and Modularity” December 19 -23 2016 at MATRIX Institute in Creswick, Australia • An overview of the ASEP model “VCU Analysis, Logic and Physics Seminar” September 30 2016 at Virginia Commonwealth University	

- **Geometry and Topology on the Bethe Ansatz for the Periodic ASEP model.**
“XXXV Workshop on Geometric Methods in Physics” June 26 -July 2 2016 at University of Biaystok, Poland.
- **On the completeness of the Bethe ansatz for the periodic ASEP model.**
“New approaches to non-equilibrium and random systems: KPZ integrability, universality, applications and experiments” January 11 -March 11 2016 at Kavli Institute of Theoretical Physics, UC Santa Barbara.
- **On the completeness of the Bethe ansatz for the periodic ASEP model.**
“34th Annual Western States Mathematical Physics Meeting” February 15 -16 2016 at California Institute of Technology.
- **On the completeness of the Bethe ansatz for the periodic ASEP model.**
“Davis-Warwick Probability Workshop” December 14 -16, 2015 at UC Davis.

DEPARTMENTAL
SERVICE

Service to the Galois Group, the UC Davis mathematics graduate student group:

- President, 2015 -2016
- Treasurer, 2014 -2015

Served as co-organizer of the 6th annual Davis Math Conference (DMC), 2015.

Served as the Mathematics representative to the UC Davis Graduate Student Association (GSA), 2012-2013.

CONFRENCES AND
WORKSHOPS

- “Topological Recursion and Modularity” December 19 -23, 2016 at the MATRIX Institute of Australia.
- “Quantum Invariants and Low-Dimensional Topology” December 14 -17, 2016 at the MATRIX Institute of Australia.
- “Quantum Integrable Systems, Conformal Field Theories and Stochastic Processes” September 12 -23, 2016 at Institut d’Etudes Scientifiques de Cargese.
- “Topological Recursion and its Influence in Analysis, Geometry, and Topology” July 4 - 8, 2016 at The University of North Carolina.
- “2016 Summer School on Random Matrices” June 13 - 24, 2016 at The University of Michigan.
- “Random Matrices, Random Growth Processes and Statistical Physics” September 7 - 11, 2015 at The Simons Center for Geometry and Physics.
- “NIMS Summer School on Random Matrix Theory” June 29 - July 10, 2015 at The National Institute for Mathematical Sciences, Daejeon, South Korea.
- Conference: “Geometric Invariants and Spectral Curves ” June 1 and June 5, 2015, at The Leiden Center.
- Conference: “Western Algebraic Geometry Symposium (WAGS), ” February 28 - March 1, 2015 , at the University of California at Davis.
- AIM Workshop: “Quantum curves, Hitchin systems, and new developments in the Eynard-Orantin theory,” September 28 - October 3, 2014, in Palo Alto, California
- Banff International Research Station 5-Day Workshop: “Quantum Curves and Quantum Knot Invariants,” June 15 - June 20, 2014, in Banff, Canada
- Conference: “String-Math,” June 9 -13, 2014, at the University of Alberta, Edmonton, Canada
- Conference: “The Mathematics of Quantum Theory in Honor of the 80th Birthday of Professor Albert Schwarz,” May 23 - 27, 2014, at the University of California in Davis, California
- Conference : “Frontier Probability Days,” May 18 - 20, 2014, at the University of Arizona, Tucson, Arizona
- SISSA Workshop: “Hamiltonian PDEs, Forbenious Manifolds, and Delinge-Mumford Moduli Spaces,” September 16 - 20, 2013, at La Scuola Internazionale Superiore di Studi Avanzati, Trieste, Italy
- Banff International Research Station 5-Day Workshop: “Integrable Systems and Moduli Spaces,” August 25 - August 30, 2013, in Banff, Canada

- Conference: “Geometric topology in New York”, 12 - 16 August 2013, Columbia University.
- QGM Conference: “Topological Recursion and Quantum Algebraic Geometry,” January 21 - February 1, 2013, at the Center for Quantum Geometry of Moduli Spaces, Aarhus Universitet, Denmark

TEACHING
EXPERIENCE

University of Virginia, Charlottesville, VA

As Associate Instructor

- MATH 3100: Introduction to Probability Fall, 2016
- MATH 4110: Introduction to Stochastic Processes Fall, 2016

University of California, Davis, Davis, CA

As Associate Instructor (Instructor of Record)

- Math 16c: Short Calculus III Summer, 2012

As Teaching Assistant

- Math 21b: Calculus II Fall, 2011
- Math 21c: Calculus III Winter, 2012
- Math 21d: Calculus IV Spring, 2012
- Math 21a: Calculus I Fall, 2013

Columbia University, New York, NY

- Graded homework for numerous physics and mathematics courses. 2009-2010