

Curriculum Vitae

Julia Yael Plavnik

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Current position

Visiting Assistant Professor (Postdoctoral position).

August 2015 - Now.

Texas A&M University.

Mentors: Dr. Eric Rowell and Dr. Sarah Witherspoon.

Previous positions

Mathematics postdoctoral fellowship.

Apr 2013 - Nov 2015.

CONICET (National Research Council) Argentina.

Universidad de Buenos Aires (IMAS - CONICET) and Universidad Nacional de Córdoba (CIEM-CONICET).

Postdoctoral supervisors: Dr. María Julia Redondo and Dr. Martín Mombelli

Education

1. Ph.D. in Mathematics

Aug 2008 – Mar (15th) 2013.

FaMAF, Universidad Nacional de Córdoba (UNC), Argentina.

Advisor: Dr. Sonia Natale.

Thesis title: *On the structure of fusion categories with few irreducible degrees.*

2. Master Class “Quantum Groups, affine Lie algebras and their applications.”

Sep 2007 – Jun 2008.

MRI (Mathematical Research Institute), Utrecht University, The Netherlands.

Advisor: Dr. Michael Mueger.

3. Licenciada en Matemática (M.Sc. in Math. equivalent)

Mar 2003 – Sep (3rd) 2007.

FaMAF, Universidad Nacional de Córdoba (UNC), Argentina.

Grade: 9.16/10.

Publications

1. “Tensor products and support varieties for some noncocommutative Hopf algebras” 2016

with S. Witherspoon

To appear in *Algebr. Represent. Theory*

Preprint [arXiv:1611.10285](https://arxiv.org/abs/1611.10285).

2. “Modular categories of dimension p^3m with m square-free” 2016
with P. Bruillard, E. Rowell.
To appear in *Proc. Amer. Math. Soc.*
Preprint [arXiv:1609.04896](https://arxiv.org/abs/1609.04896).
3. “Fermionic modular categories and the 16-fold Way” 2016
with P. Bruillard, C. Galindo, T. Hagge, S.-H. Ng, E. Rowell, Z. Wang.
Journal of Mathematical Physics **58**, (2017), 041704.
4. “Tensor functor between Morita duals of fusion categories” 2016
with C. Galindo.
Letters in Mathematical Physics **107**, Issue 3 (2017), 553-590.
DOI 10.1007/s11005-016-0914-y.
5. “On Gauging Symmetry of Modular Categories” 2016
with S.X. Cui, C. Galindo and Z. Wang.
Communication in Mathematical Physics **348**, no. 3 (2016), 1043-1064.
6. “Low-dimensional representations of the three component loop braid group” 2015
with P. Bruillard, L. Chang, S.-M. Hong, E. C. Rowell and M. Y. Sun.
Journal of Mathematical Physics **56**, no. 11 (2015), 111707.
7. “On the Classification of Weakly Integral Modular Categories” 2015
with P. Bruillard, C. Galindo, S-H. Ng, E. C. Rowell and Z. Wang.
Journal of Pure and Applied Algebra **22**, no. 16 (2015), 2364-2388.
8. “Classification of integral modular categories of Frobenius-Perron dimension pq^4 and p^2q^2 ” 2015
with P. Bruillard, C. Galindo, S.-M. Hong, Y. Kashina, D. Naidu, S. Natale and E. C. Rowell.
Canadian Mathematical Bulletin **57**, no. 4 (2014), 721-734.
9. “Solvability of a class of braided fusion categories” 2014
with S. Natale.
Applied Categorical Structures **22** (2014), 229-240.
10. “On fusion categories with few irreducible degrees” 2012
with S. Natale.
Algebra Number Theory **6**, no. 6 (2012), 1171-1197.

Preprints

1. “Classification of super-modular categories by rank” 2017
with P. Bruillard, C. Galindo, S-H. Ng, E. C. Rowell and Z. Wang.
Preprint [arXiv:1705.05293](https://arxiv.org/abs/1705.05293).

Talks in conferences

1. Summer 2017 West Coast Lie Theory Workshop on Hopf Algebras and Tensor Categories in San Diego (Invited talk), U.S.A, June 2017.
2. Workshop Structure of Operator Algebras: Subfactors and Fusion Categories (Invited talk), Cambridge, UK, January 2017.
3. AMS Special Session on New Developments in Noncommutative Algebra and Representation Theory at the 2017 Joint Mathematical Meeting in Atlanta (Invited talk), U.S.A, January 2017
4. AMS Special Session on Quantum field theories and geometric representation theory at the AMS Sectional Meeting in Minneapolis (Invited talk), U.S.A, October 2016.
5. AMS Special Session on Quantum algebra at the AMS Sectional Meeting in Denver (Invited talk), U.S.A, October 2016.
6. CMO-BIRS Workshop: Modular Categories - Their Representations, Classification, and Applications (Invited talk), Oaxaca, Mexico, August 2016.
7. Minisymposium on Mathematical Models for Topological Phases of Matter at SIAM Annual Meeting, Boston, U.S.A, July 2016.
8. International Workshop Hopf Algebras, Algebraic Groups and Related Structures, St. John's, Canada, June 2016.
9. Workshop Hopf Algebras and Actions, Part II (Invited talk), Seattle, U.S.A, April 2016.
10. AMS Special Session on Fusion Categories and Topological Phases of Matter, Salt Lake City, U.S.A, April 2016.
11. Colloquium on Algebra and Representations - Quantum 2016 (Poster), Córdoba, Argentina, February-March 2016.
12. First Encuentro Colombiano de Computación Cuántica (EC^3 2015), Bogotá, Colombia, May 2015.
13. Colloquium on Algebra and Representations - Quantum 2015, Córdoba, Argentina, March 2015.
14. 2015 Joint Mathematical Meetings (JMM) (Invited talk at AMS Special Session on Quantum Information and Fusion Categories), San Antonio, U.S.A, January 2015.
15. VII Encuentro Nacional de Álgebra, La Falda, Argentina, August 2014.
16. Mathematical Research Communities: Mathematics of Quantum Phases of Matter and Quantum Information (MRC), Snowbird, U.S.A, June 2014.
17. Colloquium on Algebra and Representations - Quantum 2014, Santa Maria, Brazil, March 2014.
18. Joint Int. Meeting of the AMS and the Romanian Mathematical Society (Invited talk), Alba Iulia, Romania, June 2013.
19. Workshop on Fusion Categories (Invited talk), Dijon, France, May 2013.
20. Colloquium on Algebra and Representations - Quantum 2013, Taí del Valle, Argentina, March 2013.
21. XIX Coloquio Latinoamericano de Álgebra (CLA), Pucón, Chile, December 2012.
22. Primeras Jornadas de Doctorandos de FaMAF, Córdoba, Argentina, November 2012.
23. IV Congreso Latinoamericano de Matemáticos (CLAM), Córdoba, Argentina, August 2012.

24. Colloquium on Algebra and Representations - Quantum 2012, Mendoza, Argentina, March 2012.
25. Reunión Anual de la UMA, Tucumán, Argentina, September 2011.
26. Snoop Update'05 (Invited talk), Buenos Aires, Argentina, September 2012.
27. 34 JAIIO (Plenary conference and poster), Rosario, Argentina, September 2005.

Future Talks in conferences

1. AWM Workshop on Noncommutative Algebra and Representation Theory at the 2018 Joint Mathematical Meeting in San Diego (Invited talk), U.S.A, January 2018.
2. AMS Special Session on at the AMS Sectional Meeting in Denton (Invited talk), U.S.A, September 2017.
3. Special Session on Hopf Algebras and Tensor Categories at the Mathematical Congress of the Americas in Montreal (Invited talk), Canada, July 2017.

Talks in seminars

1. Algebra Seminar, UC San Diego, U.S.A. June 05th, 2017.
2. Quantum Algebra/Topology Seminar, UC Santa Barbara, U.S.A. May 17th, 2017.
3. Hypatian Seminar, UC Santa Barbara, U.S.A. May 15th, 2017.
4. Infinite Dimensional Algebra Seminar, M.I.T, U.S.A. May 12th, 2017.
5. Quantum Algebra and Quantum Topology Seminar, Ohio State University, U.S.A. April 4th, 2017.
6. Quantum mathematics meeting, Australian National University, Australia. March 17th, 2017.
7. Algebra and Topology Seminar, Australian National University, Australia. March 14th, 2017.
8. Hopf Working Seminar, University of Southern California, U.S.A. February 09th, 2016.
9. Algebra Seminar, University of Southern California, U.S.A. February 08th, 2016.
10. Postdoc Colloquium, Texas A & M University, U.S.A. October 29th, 2015; October 26th, 2016.
11. Homological Algebra Seminar, Universidad de Buenos Aires, Argentina. July 10th, 2013; August 28th, 2013.
12. Quantum Physics and Geometry Seminar, Universität Hamburg, Germany. June 14th, 2013.
13. Oberseminar "Kombinatorik und Algebra", Philipps-Universität Marburg, Germany. June 5th, 2013.
14. Algebra Seminar, Universiteit Utrecht, The Netherlands. May 29th, 2013.
15. Q.A. Seminar, Universidad de Buenos Aires, Argentina. April 22nd, 2013.
16. Lie Theory Seminar, FaMAF, Universidad Nacional de Córdoba, Argentina. June 09th, 2011; May 31st, 2012; April 16th, 2015.
17. "Algebra and Combinatorics" Seminar, Texas A & M University, U.S.A. March 23rd, 2012; October 16th, 2015.

18. “GRASP” (Geometry, Representation and Some Physics) Seminar, UC Berkeley, U.S.A. March 09th, 2012.
19. Rutgers Algebra Seminar, Rutgers, The State University of New Jersey, U.S.A. February 29th, 2012.
20. “Knots and geometrizations” Seminar, Universiteit van Amsterdam, The Netherlands. October 29th, 2007.

Conferences and Seminars Co-Organization:

1. Workshop on Subfactors and fusion categories at BIRS in Banff, Canada, October 14th-19th, 2018 (organized with Gannon, Morrison, and Penneys).
Website: <https://www.birs.ca/>
2. AMS Mathematics Research Communities: “Quantum Symmetries: Subfactors and Fusion Categories”, June 10th-16th, 2018 (organized with David Penneys and Noah Snyder with assistants Paul Bruillard and Corey Jones).
Website: <http://www.ams.org/programs/research-communities/mrc-18>
3. AMS Special Session on Algebras, Tensor Categories, and Homological Algebra at the AMS Sectional Meeting in Boston. April 21st-22nd, 2018 (organized with Negron, and Witherspoon).
Website: http://www.ams.org/meetings/sectional/2252_program.html
4. AMS Special Session on Quantum Symmetries at the AMS Sectional Meeting in Columbus. March 17th-18th, 2018 (organized with Penneys).
Website: http://www.ams.org/meetings/sectional/2250_program.html
5. AMS Special Session on Quantum Computing and Topological Phases of Matter at the 2018 Joint Mathematics Meetings in San Diego, January 09th-13th, 2018 (organized with Bruillard, and Meyer).
Website: http://jointmathematicsmeetings.org/meetings/national/jmm2018/2197_special.html
6. AMS Special Session on Tensor Categories: Bridging Algebra, Topology, and Physics at the AMS Sectional Meeting in Riverside. November 4th-5th, 2017 (organized with Bruillard, and Tucker).
Website: http://www.ams.org/meetings/sectional/2243_program.html
7. Working Seminar on “Quantum Computing and Quantum Information”, Texas A & M University, Summer 2017 (with M. Brannan and P. Gustafson).
8. Seminar “Algebra and Combinatorics”, Texas A & M University, Spring 2017 (with J. Forsgaard and E. Rowell), Fall 2017 (with E. Rowell).
9. Special Session on Hopf Algebras and Tensor Categories at the XXII Coloquio Latinoamericano de Álgebra in Quito, Ecuador, August 07th-11th, 2017 (organized with Galindo).
Website: <http://www.puce.edu.ec/claquito2017/>

10. Special Session on Mathematics of Quantum Phases of Matter and Quantum Information at the Mathematical Congress of the Americas in Montreal, Canada, July 24th-28th, 2017 (organized with Bruillard, Galindo, and Rowell).
Website: <https://mca2017.org/scientificprogram>
11. AMS Special Session on Fusion Categories and Applications at the AMS Sectional Meeting in Bloomington. April 1st-2nd, 2017 (organized with Bruillard, and Rowell).
Website: http://www.ams.org/meetings/sectional/2233_program.html
12. Symposium for Faculty, Staff, Graduate Student and PostDocs in the Sciences: Insight and Strategies for Professional Success, Personal Well Being and Getting Along with Others at Texas A&M University, February 24th, 2017 (organized with Akleman, Dabney, Rosenthal, Watanabe, and Webb).
Website: <http://www.stat.tamu.edu/derya/symposium/>
13. AMS Special Session on Fusion Categories and Quantum Symmetries at the 2017 Joint Mathematics Meetings in Atlanta, January 04th-07th, 2017 (organized with Bruillard, and Rowell).
Website: http://jointmathematicsmeetings.org/meetings/national//jmm/2180_program.html
14. AMS Special Session on Topological Phases of Matter and Quantum Computing at the AMS Sectional Meeting in Brunswick. September 24th-25th, 2016 (organized with Bruillard, and Ortiz Marrero).
Website: http://www.ams.org/meetings/sectional/2238_program.html
15. Minisymposium on Mathematical Models for Topological Phases of Matter at SIAM Annual Meeting in Boston. July 11th-15th, 2016 (organized with Bruillard, and Creamer).
Website: <http://www.siam.org/meetings/an16/>
16. AMS Special Session on Fusion Categories and Topological Phases of Matter at the AMS Sectional Meeting in Salt Lake City. April 09th-10th, 2016 (organized with Bruillard).
Website: http://www.ams.org/meetings/sectional/2232_program_ss11.html#title
17. First Encuentro Colombiano de Computación Cuántica (EC^3 2015) in Bogotá, Colombia. May 11th-15th, 2015 (organized with DÁaz, Galindo, Rowell, and Wang).
Website: <http://matematicas.uniandes.edu.co/eventos/2015/EC/>
18. Colloquium on Algebra and Representations - Quantum 2014, Santa Maria, Rio Grande do Sul, Brasil. March 20th-24th, 2014 (organized with Angiono, Bagio, FlÁ´res, Paques, and Silva Rodrigues).
Website: <http://www.famaf.unc.edu.ar/plavnik/quantum2014-en/index-en.html>
19. Colloquium on Algebra and Representations - Quantum 2013, in Tafí del Valle, Tucumán, Argentina. March 22nd-25th, 2013 (organized with Andruskiewitsch, and Fantino).
Website: <http://www.famaf.unc.edu.ar/plavnik/quantum2013-en/index-en.html>

20. Graduate seminar of FaMAF, Universidad Nacional de Córdoba (UNC), Fall and Spring 2010. (with R. M. Arroyo).

Fellowships and awards

- Selected to participate at the 5th Heidelberg Laureates Forum. in September 2017.
- AMS - Simon Travel Grant - Selection March 2016 (USD 4000).
- AWM Travel grant - Selection October 2015 (USD 3500).
- Funding for additional collaborations for the MRC program. January 2015.
- Fellowship, MRC (Mathematics Research Communities), U.S.A. To attend to the MRC Special Session “Special Session on Quantum Information and Fusion Categories” at the 2015 JMM. San Antonio, Texas, U.S.A. January 2015.
- Full fellowship, MRC (Mathematics Research Communities), U.S.A. To attend to the MRC “Mathematics of Quantum Phases of Matter and Quantum Information”. Snowbird, Utah, U.S.A. June 2014.
- Full fellowship to attend to the “Twelfth Spring Institute on Noncommutative Geometry and Operator Algebras”. Vanderbilt University, Nashville, Tennessee, U.S.A. May 2014 (USD 1100).
- SQuaRE Program, AIM (American Institute of Mathematics): 2014-2016 (with P. Bruillard, C. Galindo, S.-H. Ng, E.C.Rowell and Z. Wang)
- Full fellowship, University of Talca, Clay Mathematics Institute and Conicyt to attend to “Representation theory days in Patagonia”. Punta Arenas, Chile. January 2014 (USD 800).
- PostDoctoral fellowship, CONICET, Argentina. Advisor: Dr. María Julia Redondo. Coadvisor: Dr. Martín Mombelli. April 2013 – August 2015.
- Ph.D. fellowship Type II, CONICET, Argentina. Advisor: Dr. Sonia Natale. Coadvisor: Dr. Nicolás Andruskiewitsch. April 2011 – March 2013.
- Ph.D. fellowship Type I, CONICET, Argentina. Advisor: Dr. Sonia Natale. Coadvisor: Dr. Nicolás Andruskiewitsch. April 2008 – March 2011.
- Full fellowship, AIM (American Institute of Mathematics), U.S.A. To attend to the AIM Workshop “Classifying fusion categories”. Palo Alto, California, U.S.A. March 2012.
- Premio Talentos 2008. Best undergraduate student of FaMAF. Journal “Punto a Punto”. September 2008.
- Master Class full fellowship, MRI (Mathematical Research Institute), Utrecht University, The Netherlands. Full fellowship for the realization of the Master Class “Quantum Groups, Affine Lie Algebras and their applications” (Universiteit Utrecht). September 2007 – June 2008.
- Primer premio en el Concurso de Trabajos Estudiantiles, with R.M.Arroyo. Best undergraduate thesis. 34 JAIIO. September 2005.
- Premio estudiantil cordobés. Best high school student. Córdoba province government. December 2000.

Teaching experience

Visiting Assistant Professor

Aug 2015 – Now

Texas A&M University.

Spring 2017: Math 433-Applied Algebra, section 500.

Fall 2016: (2 courses) Math 311-Topics in Applied Math I, sections 502 and 504.

Spring 2016: Math 311-Topics in Applied Math I, section 501.

Fall 2015: (2 courses) Math 151-Engineering Math I, sections 543-545 and 552-554.

Assistant Professor

Apr 2015 – Mar 2016

FaMAF – Universidad Nacional de Córdoba – Argentina.

Graduate student instructor (JTP)

Aug 2013 – Now (currently on leave)

FaMAF – Universidad Nacional de Córdoba – Argentina.

Graduate teaching assistant

Aug 2009 – Jul 2013

FaMAF – Universidad Nacional de Córdoba – Argentina.

Graduate teaching assistant

May 2009 – May 2010

Facultad Regional Córdoba – Universidad Tecnológica Nacional – Argentina.

Undergraduate teaching assistant

Mar 2005 – Aug 2007

FaMAF – Universidad Nacional de Córdoba – Argentina.

Outreach and Service activities

Tutor in “PACENI” Program (mathematics) at FaMAF, UNC. May 2009-Mar 2010;

Jun-Aug 2010.

This program is devoted to orient students in their first approach to University and to help them during their adaptation time.

Tutor of the course “TIC para enseñar” (TIC to teach)(mathematics), organized by the Ministerio de Educación de la Provincia de Córdoba, La Voz del Interior, la Facultad de Matemática, Astronomía y Física y la Facultad de Lenguas de la Universidad Nacional de Córdoba (UNC). Sep-Dec 2011.

This program is devoted to teach high school teachers some interesting topics and how to introduce them to the students using new technologies.

Referee for Appl. Categor. Struct.; J. Algebra.

Reviewer for Mathematical Reviews (AMS) since March 2013.

Research Experience for Undergraduates (REU) 2017 : mentor of the program on Mathematics of Topological Quantum Computation at Texas A&M University.

Undergraduate Research Mentoring: Ryan Bailey (2016-2017) (jointly with Timo de Wolff since Spring 2017).

Coordinate Texas A&M undergraduate attendees, MathFest (August 2016, August 2017) and JMM (January 2017).

Postdoctoral representative at the College of Science Diversity Committee of Texas A&M University, since April 2016.

Co-organizer of the Woman in Math lunches series at Texas A&M University, Fall 2016; Spring 2017; Fall 2017.

Judge for the Student Research Weel at Texas A&M University. Topic judge (subject area: science) for posters, March 2017.

Volunteer at the Texas A&M Eleventh Annual Integral Bee, March 2017.

Volunteer at the Texas A&M Fifth Annual Derivative Bee, November 2016.

Judge for the Texas Junior Academy of Science (physics), October 2016.

Judge for the MAA Student Paper Presentations at MathFest, August 2016.

SEE-Math instructor (Logic Puzzles activity), July 2016.

Problem-writing Committee and Volunteer at the Texas A&M Tenth Annual Integral Bee, March 2016.

Problem-writing Committee and Volunteer at the Texas A&M Fourth Annual Derivative Bee, November 2015.

Grader for the Power Team at the Texas A&M High School Math Contest, October 2015; October 2016.

Languages

Spanish (mother tongue), English, French (DELF B1 level), Portuguese.