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César Galindo

Personal information

Full name: César Neyit Galindo Martínez

Birthday: November 18, 1982

Citizenship: Colombian

Positions

- 2014–present **Associate Professor**, *Universidad de los Andes*, Department of Mathematics.
August-2019–April-2021 **von Humboldt Fellow**, *Hamburg University*, Department of Mathematics.
2012– 2014 **Assistant Professor**, *Universidad de los Andes*, Department of Mathematics.
2011– 2012 **Visiting Assistant professor**, *Universidad de los Andes*, Department of Mathematics.
2009– 2010 **Assistant professor (Tenure-Track)**, *Pontificia Universidad Javeriana*, Bogotá, Colombia.

Education

- 2009 **PhD, Mathematics**, *Universidad Nacional de Córdoba*, Córdoba, Argentina.
Thesis title: Tensor categories and finite groups
Adviser: Sonia Natale
2005 **BSc, Mathematics**, *Universidad Nacional de Colombia*, Bogotá, Colombia.

Research Interests

My research work is in pure mathematics, studying quantum symmetries at the intersection of higher category theory, representation theory, low-dimensional topology, and Hopf algebras. I also work on topological quantum field theory connecting my work on categorical group actions on modular categories with applications to topological phases of matter and topological quantum computing.

Teaching Experience

at *Universidad de los Andes*

Introduction to Quantum Computation, Introduction to Lie algebra, Commutative Algebra, Introduction to representation theory, Number theory, Logic, Topology, Abstract Algebra, Advanced linear algebra, Linear algebra, Differential Calculus, Integral Calculus, Vector Calculus, Differential Equations.

Students

Graduated

- David Jaklitsch (**Masters**). Advised joint with Prof. Christoph Schweigert. Hamburg University.(2020)
- Diego Romero (**Masters**) Universidad de los Andes.(2020)
- Fernando Venegaz (**PhD**). Universidad de los Andes. (2019)
- Yiby Karolina Morales (**PhD**) Universidad de los Andes. (2019)
- Nicolás Jaramillo (**Masters**) Universidad de los Andes. (2018)
- Nicolás Escobar (**Masters**) Universidad de los Andes.(2018)
- Diana Castañeda (**Masters**) Universidad de los Andes.(2013)
- Yiby Morales (**Masters**) Universidad de los Andes.(2012)
- Manuel Medina (**Masters**). Advised joint with Prof. Stella Huerfano. Universidad Nacional de Colombia, Bogota.(2013)
- Lina Fajardo (**BSc**). Universidad de los Andes (2011)
- Andrés Rodríguez Rey (**BSc**). Universidad de los Andes (2015)
- Jesus Cifuentes (**BSc**). Universidad de los Andes (2017)
- Matias Ruiz (**BSc**). Universidad de los Andes (2016)
- Juan Camilo Reyes (**BSc**). Universidad de los Andes (2019)

Current

- David Jaklitsch, (**PhD**). Advised joint with Prof. Christoph Schweigert. Hamburg University.
- Diego Romero, (**PhD**). Universidad de los Andes
- Nicolás Ramirez, (**PhD**). Universidad de los Andes
- Giovanni Mora, (**Masters**). Universidad de los Andes

Visits

- August 2019- March 2021. Hamburg University; Hamburg, Germany. as *Fellow of von Humboldt Foundation*.
- March-July 2013 Massachusetts Institute of Technology; Cambridge, USA.
- April 2013, Microsoft station Q; Santa Barbara, USA.
- September 2015 and December 2017
- March 2013. Texas A& M University; Collage station, USA
- November 2017
- July 2011 Universite Montpellier II; Montpellier, France.
- April 2010 Universidad de la Republica; Montevideo, Uruguay.
- September-2009, Universidad Nacional de Córdoba, Córdoba, Argentina.
- April-2010,
- July-2017

Conference Organized

- Research Cimpa School on Quantum symmetries. June-July 2019 (two week) Universidad de los Andes.
- Special Session "Mathematics of Quantum Phases of Matter and Quantum Information" Math Congress of the Americas. Centre Mont-Royal and McGill University, Montreal, Canada. 2017.
- Special Session "Hopf algebras" XXII Coloquio Latinoamericano de Álgebra. Quito, Ecuador.
- Special Session "Algebra" XXI Congreso Nacional de Matemáticas 2017, Bogotá.
- Special Session "algebra number theory and combinatorics" XX Congreso Nacional de Matemáticas 2015, Manizales.
- Colombian Meeting of Quantum Computation. Bogotá, 2015.
- School and Conference on Real Algebraic Geometry, Cimpa School, Villa de Leyva, July 2014.
- Jairo Charis Seminar, Category, Geometry and Physics. Santa Marta, August 2011.
- Encuentros Bogotanos de álgebra, Uniandes March 2011,

Awards

- Fellows of the von Humboldt Foundation. Program: Experienced Researchers.
- Research Membership of MSRI, Berkeley. For the participation in the special semester Quantum Symmetries, Spring 2020. (I could not participate for the pandemic.)
- Abel Visiting Scholar Program of the International Mathematical Union (2017).
- Full Ph.D. Scholarship. Program of the Argentinian Government for Latin American countries. (2005-2009).

Publications

- [1] César Galindo. Crossed product tensor categories. *J. Algebra*, 337:233–252, 2011. [✉ doi:10.1016/j.jalgebra.2011.04.012](https://doi.org/10.1016/j.jalgebra.2011.04.012).
- [2] César Galindo. Clifford theory for graded fusion categories. *Israel J. Math.*, 192(2):841–867, 2012. [✉ doi:10.1007/s11856-012-0055-7](https://doi.org/10.1007/s11856-012-0055-7).
- [3] César Galindo and Martín Mombelli. Module categories over finite pointed tensor categories. *Selecta Math. (N.S.)*, 18(2):357–389, 2012. [✉ doi:10.1007/s00029-011-0067-x](https://doi.org/10.1007/s00029-011-0067-x).
- [4] César Galindo and Julia Yael Plavnik. Tensor functors between Morita duals of fusion categories. *Lett. Math. Phys.*, 107(3):553–590, 2017. [✉ doi:10.1007/s11005-016-0914-y](https://doi.org/10.1007/s11005-016-0914-y).
- [5] César Galindo and Sonia Natale. Simple Hopf algebras and deformations of finite groups. *Math. Res. Lett.*, 14(6):943–954, 2007. [✉ doi:10.4310/MRL.2007.v14.n6.a4](https://doi.org/10.4310/MRL.2007.v14.n6.a4).
- [6] César Galindo and Sonia Natale. Normal Hopf subalgebras in cocycle deformations of finite groups. *Manuscripta Math.*, 125(4):501–514, 2008. [✉ doi:10.1007/s00229-007-0156-5](https://doi.org/10.1007/s00229-007-0156-5).

- [7] César Galindo and Manuel Medina. On the classification of Galois objects for finite groups. *Comm. Algebra*, 40(7):2577–2595, 2012. [↗ doi:10.1080/00927872.2011.583304](https://doi.org/10.1080/00927872.2011.583304).
- [8] César Galindo. Isocategorical groups and their Weil representations. *Trans. Amer. Math. Soc.*, 369(11):7935–7960, 2017. [↗ doi:10.1090/tran/6919](https://doi.org/10.1090/tran/6919).
- [9] Iván Angiono, César Galindo, and Mariana Pereira. De-equivariantization of Hopf algebras. *Algebr. Represent. Theory*, 17(1):161–180, 2014. [↗ doi:10.1007/s10468-012-9392-9](https://doi.org/10.1007/s10468-012-9392-9).
- [10] Iván Angiono and César Galindo. Pointed finite tensor categories over abelian groups. *Internat. J. Math.*, 28(11):1750087, 18, 2017. [↗ doi:10.1142/S0129167X17500872](https://doi.org/10.1142/S0129167X17500872).
- [11] Nicolás Andruskiewitsch, César Galindo, and Monique Müller. Examples of finite-dimensional Hopf algebras with the dual Chevalley property. *Publ. Mat.*, 61(2):445–474, 2017. [↗ doi:10.5565/PUBLMAT6121705](https://doi.org/10.5565/PUBLMAT6121705).
- [12] Shawn X. Cui, César Galindo, Julia Yael Plavnik, and Zhenghan Wang. On gauging symmetry of modular categories. *Comm. Math. Phys.*, 348(3):1043–1064, 2016. [↗ doi:10.1007/s00220-016-2633-8](https://doi.org/10.1007/s00220-016-2633-8).
- [13] César Galindo. Coherence for monoidal G -categories and braided G -crossed categories. *J. Algebra*, 487:118–137, 2017. [↗ doi:10.1016/j.jalgebra.2017.05.027](https://doi.org/10.1016/j.jalgebra.2017.05.027).
- [14] Paul Bruillard, César Galindo, Seung-Moon Hong, Yevgenia Kashina, Deepak Naidu, Sonia Natale, Julia Yael Plavnik, and Eric C. Rowell. Classification of integral modular categories of Frobenius-Perron dimension pq^4 and p^2q^2 . *Canad. Math. Bull.*, 57(4):721–734, 2014. [↗ doi:10.4153/CMB-2013-042-6](https://doi.org/10.4153/CMB-2013-042-6).
- [15] Paul Bruillard, César Galindo, Siu-Hung Ng, Julia Y. Plavnik, Eric C. Rowell, and Zhenghan Wang. On the classification of weakly integral modular categories. *J. Pure Appl. Algebra*, 220(6):2364–2388, 2016. [↗ doi:10.1016/j.jpaa.2015.11.010](https://doi.org/10.1016/j.jpaa.2015.11.010).
- [16] César Galindo, Seung-Moon Hong, and Eric C. Rowell. Generalized and quasi-localizations of braid group representations. *Int. Math. Res. Not. IMRN*, (3):693–731, 2013. [↗ doi:10.1093/imrn/rnr269](https://doi.org/10.1093/imrn/rnr269).
- [17] César Galindo and Eric C. Rowell. Braid representations from unitary braided vector spaces. *J. Math. Phys.*, 55(6):061702, 13, 2014. [↗ doi:10.1063/1.4880196](https://doi.org/10.1063/1.4880196).
- [18] César Galindo. Clifford theory for tensor categories. *J. Lond. Math. Soc. (2)*, 83(1):57–78, 2011. [↗ doi:10.1112/jlms/jdq064](https://doi.org/10.1112/jlms/jdq064).
- [19] César Galindo, Eric Rowell, and Zhenghan Wang. On acyclic anyon models. *Quantum Inf. Process.*, 17(9):Paper No. 245, 8, 2018. [↗ doi:10.1007/s11128-018-2012-9](https://doi.org/10.1007/s11128-018-2012-9).
- [20] Paul Bruillard, César Galindo, Siu-Hung Ng, Julia Y. Plavnik, Eric C. Rowell, and Zhenghan Wang. Classification of super-modular categories by rank. *Algebr. Represent. Theory*, 23(3):795–809, 2020. [↗ doi:10.1007/s10468-019-09873-9](https://doi.org/10.1007/s10468-019-09873-9).

- [21] Nicolás Escobar-Velásquez, César Galindo, and Zhenghan Wang. Braid group representations from braiding gapped boundaries of Dijkgraaf-Witten theories. *Pacific J. Math.*, 300(1):1–16, 2019. [doi:10.2140/pjm.2019.300.1](https://doi.org/10.2140/pjm.2019.300.1).
- [22] César Galindo and Yiby Morales. A five-term exact sequence for Kac cohomology. *Algebra Number Theory*, 13(5):1121–1144, 2019. [doi:10.2140/ant.2019.13.1121](https://doi.org/10.2140/ant.2019.13.1121).
- [23] Parsa Bonderson, Colleen Delaney, César Galindo, Eric C. Rowell, Alan Tran, and Zhenghan Wang. On invariants of modular categories beyond modular data. *J. Pure Appl. Algebra*, 223(9):4065–4088, 2019. [doi:10.1016/j.jpaa.2018.12.017](https://doi.org/10.1016/j.jpaa.2018.12.017).
- [24] Eugenia Bernaschini, César Galindo, and Martín Mombelli. Group actions on 2-categories. *Manuscripta Math.*, 159(1-2):81–115, 2019. [doi:10.1007/s00229-018-1031-2](https://doi.org/10.1007/s00229-018-1031-2).
- [25] Pavel Etingof and César Galindo. Reflection fusion categories. *J. Algebra*, 516:172–196, 2018. [doi:10.1016/j.jalgebra.2018.09.006](https://doi.org/10.1016/j.jalgebra.2018.09.006).
- [26] Paul Bruillard, César Galindo, Tobias Hagge, Siu-Hung Ng, Julia Yael Plavnik, Eric C. Rowell, and Zhenghan Wang. Fermionic modular categories and the 16-fold way. *J. Math. Phys.*, 58(4):041704, 31, 2017. [doi:10.1063/1.4982048](https://doi.org/10.1063/1.4982048).
- [27] Iván Angiono, César Galindo, and Leandro Vendramin. Hopf braces and Yang-Baxter operators. *Proc. Amer. Math. Soc.*, 145(5):1981–1995, 2017. [doi:10.1090/proc/13395](https://doi.org/10.1090/proc/13395).
- [28] César Galindo and Nicolás Jaramillo. Solutions of the hexagon equation for abelian anyons. *Rev. Colombiana Mat.*, 50(2):273–294, 2016. [doi:10.15446/recolma.v50n2.62213](https://doi.org/10.15446/recolma.v50n2.62213).
- [29] César Galindo, Ismael Gutiérrez, and Bernardo Uribe. Multiplicative structures on the twisted equivariant K-theory of finite groups. *J. Noncommut. Geom.*, 9(3):877–937, 2015. [doi:10.4171/JNCG/211](https://doi.org/10.4171/JNCG/211).
- [30] César Galindo. On braided and ribbon unitary fusion categories. *Canad. Math. Bull.*, 57(3):506–510, 2014. [doi:10.4153/CMB-2013-017-5](https://doi.org/10.4153/CMB-2013-017-5).
- [31] Colleen Delaney, César Galindo, Julia Plavnik, Eric C. Rowell, and Qing Zhang. Braided zesting and its applications. *arXiv:2005.05544*, 2020.
- [32] César Galindo and César F. Venegas-Ramírez. Categorical fermionic actions and minimal modular extensions. *arXiv:1712.07097*, 2017.

Invited Lectures

2020

- University Quantum Symmetries Lectures $U_q(sl)$. Online seminar, North Carolina State University. October 2020.
- QSS Seminar. Online seminar, The Ohio State University. October 2020.
- GAPT group Seminar, Cardiff University. Online seminar. October 2020.

2019

- Oberwolfach Workshop : Subfactors and Applications. October 2019, Oberwolfach, Germany.

- Humboldt Kolleg Measuring America, March 2019, Barranquilla, Colombia.
- Colloquium on Algebras and Representations, Quantum 19. March 2019, Montevideo, Uruguay.

2018

- AMS Sectional Meeting in Boston. Special Session on Algebras, Tensor Categories, and Homological Algebra. April 2018, Boston, USA.
- Novena Escuela de Física Matemática, UniAndes May 2018. Bogotá, Colombia
- Banf International Research Station. Workshop “Fusion Categories and Subfactors”, October 2018, Banf Canada.
- Quantum 60 - Colloquium on Algebras and Representations. December 2018, Córdoba, Argentina.

2017

- Mathematical Congress of the Americas, July 2017, Montréal. I was invited to give three different talks in the following special sessions: (1) Special Session von Neumann Algebras, (2) Special Session Hopf algebras and Tensor Categories, (3) Special Session Groups in Geometry and Topology.
- Perimeter Institute. Workshop “Hopf algebras in Kitaev’s Quantum Double Models”. July 2017, Waterloo Canada.
- XXII Coloquio Latinoamericano de Álgebra in Quito. Special Session: Operator Algebras. August 2017, Quito, Ecuador.

2016

- XXI Coloquio Latinoamericano de Álgebra. I was invited to give to different talks in the special sessions: (1) Hopf algebras de Hopf, (2) Group theory. July 2016, Buenos Aires, Argentina.
- Coloquio Internacional de Representaciones de Álgebras; Alexander Zavadskij. October 2016. Universidad Nacional; Bogotá, Colombia

2015

- Quinta Escuela de Física Matemática, UniAndes May 2015. Bogotá, Colombia
- Second International Colloquium International of Representation algebras and its applications; Alexander Zavadskij. Unal Bogota, October 2016

2014

- Meeting on Discrete Geometry, Representations and Categories, Universidad del Valle. January 2014. Cali, Colombia.
- Banf International Research Station for Mathematical Innovation and Discovery (BIRS) . Banf, Canada. April 2014. Workshop: Subfactors and Fusion Categories.
- Mathematics Research Communities. Mathematics of Quantum Phases of Matter and Quantum Information. June 2014, Snowbird, Utah, USA.
- Colóquio de Álgebra e Representações Quantum March 2014. Santa Maria, Rio Grande do Sul, Brazil

2013

- Mathematical Congress of the Americas, August, 2013. Guanajuato, Mexico. Special Session: Non-commutative algebras.

2012

- PanAmerican Advanced Studies Institute (PASI). CIMAT; May 2012. Guanajuato, Mexico.
- Altenco 5 . Universidad Distrital; June 2012. Bogotá, Colombia. Mini-course: An introduction to representation theory.

2011

- Hopf algebras and tensor categories. University of Almería; July 2011. Almería, Spain.

2010

- Conference on quantum groups. Blaise Pascal University, August 2010. Clermont Ferrand, France.