Eddy Pariguan

Full Professor of Mathematics

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Profile

Full Professor of Mathematics with expertise in combinatorial theory and its applications, including symmetric and multisymmetric functions, quantum algebra, deformation quantization and combinatorial species. Extensive experience in undergraduate and graduate teaching, pedagogical innovation and student mentoring. Actively engaged in interdisciplinary projects on gender equity, outreach and social appropriation of mathematical knowledge. Committed to inclusive education, reflective teaching practices and the formation of meaningful academic communities.

Leadership & Impact Highlights

- **Pedagogical leadership and institutional impact:** Implemented a metacognitive teaching strategy in first-year mathematics courses, integrating explicit work on planning, self-regulation and reflective learning within core disciplinary content. The strategy was developed as a multidisciplinary initiative involving Mathematics, Engineering programs and the *Center for Learning Support*, as part of the *Center for Psychological Counseling and Health*, strengthening student engagement, academic permanence and reflective learning practices.

- **National outreach, gender equity and public engagement:** Founder and curator of *Mujeres Matemáticas en Colombia*, an interdisciplinary outreach initiative active since 2020 that creates public-facing, research-based narratives to broaden participation and challenge gender stereotypes in mathematics. The exhibition has been presented in academic settings (universities and schools) as well as public and cultural spaces, including the Alliance Française of Bogotá (2025), and is systematically accompanied by forums, panel discussions and workshops aimed at raising awareness and fostering critical reflection on gender stereotypes in mathematics.

- **Community building and academic leadership in combinatorics (2015–2025):** Organizer and co-organizer of multiple combinatorics conferences, schools and academic events over the past decade, contributing to regional training, collaboration and network-building in combinatorics. This includes the organization of *Días de Combinatoria 2025* (EMALCA School), a high-impact training and networking event for students and researchers.

- **Mentorship and capacity building:** Supervised undergraduate and master's theses, contributing to the formation of new mathematicians and the consolidation of research lines within the department.

Areas of Expertise

Combinatorial theory and applications. Symmetric and multisymmetric functions. Quantum algebras and deformation quantization. Combinatorial species and categorification. Mathematics education and metacognition.Gender, equity and outreach in mathematics.

Academic Positions

- **Full Professor**, Pontificia Universidad Javeriana, Bogotá, Colombia (2007–present)

- Visiting Professor, Universidad de los Andes, Bogotá, Colombia (2006–2007)

- Full-time Lecturer, Universidad Central de Venezuela, Caracas, Venezuela (2001–2007)

Education

- Ph.D. in Mathematics, Universidad Central de Venezuela, 2004

- M.Sc. in Mathematics, Universidad Central de Venezuela, 2002

- B.Sc. in Mathematics, Universidad Central de Venezuela, 2000

Publications

Preprint

- E. Pariguan and J. Sierra V., *RSK and Quantum Symmetric Functions: A Combinatorial Approach*, arXiv:2509.07912, 2025. https://doi.org/10.48550/arXiv.2509.07912

Journal Articles

1. E. Pariguan and J. Sierra V., *On multi-symmetric functions and transportation polytopes*, Proyecciones (Antofagasta, Online), 41(1), 301–317, 2022. doi:10.22199/issn.0717-6279-4446

2. E. Pariguan and J. S. Rodriguez, *La especie de los Pulpos*, Revista de Matemáticas: Teoría y Aplicaciones, 22(2), 275–291, 2015.

3. R. Díaz and E. Pariguan, *Quantum product of symmetric functions*, International Journal of Mathematics and Mathematical Sciences, Article ID 476926, 2015. dx.doi.org/10.1155/2015/476926

4. R. Díaz, C. Ortiz and E. Pariguan, *On the k-gamma q-distribution*, Central European Journal of Mathematics, 8(3), 448–458, 2010.

5. R. Díaz and E. Pariguan, *On the Gaussian q-distribution*, Journal of Mathematical Analysis and Applications, 358(1), 1–9, 2009.

6. R. Díaz and E. Pariguan, *On the q-meromorphic Weyl algebra*, São Paulo Journal of Mathematical Sciences, 3(1), 281–296, 2009.

7. R. Díaz and E. Pariguan, *Super, quantum and noncommutative species*, African Diaspora Journal of Mathematics, 8(1), 90–130, 2009.

8. R. Díaz and E. Pariguan, *An example of Feynman–Jackson integral*, Journal of Physics A: Mathematical and Theoretical, 40, 1265–1272, 2007.

9. R. Díaz and E. Pariguan, *On hypergeometric functions and Pochhammer k-symbol*, Divulgaciones Matemáticas, 15(2), 179–192, 2007.

10. R. Díaz and E. Pariguan, *Feynman–Jackson integrals*, Journal of Nonlinear Mathematical Physics, 13, 365–376, 2006.

11. R. Díaz and E. Pariguan, *Graphical introduction to classical Lie algebras*, Boletín de la Asociación Matemática Venezolana, 12(2), 185–216, 2005.

12. R. Díaz and E. Pariguan, *Quantum symmetric functions*, Communications in Algebra, 33(6), 1947–1978, 2005.

13. R. Díaz and E. Pariguan, *Symmetric quantum Weyl algebras*, Annales Mathématiques Blaise Pascal, 11, 187–203, 2004.

Editorial Work

- *Geometric and Topological Methods for Quantum Field Theory*, Cambridge University Press, 2010. Co-editor (with Hernán Ocampo and Sylvie Paycha).

Teaching and Faculty Development

- **Teaching Experience:** Undergraduate and graduate courses in Mathematics, including Linear Algebra, Differential Calculus, Abstract Algebra, Foundations of mathematics, Combinatorics and related areas.

- **Faculty Development and Pedagogical Training:** Faculty development program focused on the pedagogical relationship as a human, reflective and transformative process. Emphasis on care, vulnerability, dialogical teaching and reflective practice. Active methodologies include experiential learning, workshops, case studies and reflective teaching journals.

Invited Talks, Conferences and Academic Events (2015–2025)

1. *Categorificación. Ejemplos y reflexiones.* Congreso Colombiano de Matemáticas, Universidad Pedagógica y Tecnológica de Colombia, Tunja, Colombia, June 2023.

2. *Sobre funciones simétricas y sus aplicaciones.* CONVIMATE 2022, Universidad del Valle, Cali, Colombia, January 2022.

3. *Ejemplos de $\mathcal{C}$-Especies.* Coloquio de Matemáticas, Universidad de los Andes, Bogotá, Colombia, June 2021.

4. *Producto cuántico entre funciones multisimétricas.* XXI Congreso Colombiano de Matemáticas, Bogotá, Colombia, June 2017.

5. *Producto cuántico entre funciones simétricas.* VII Encuentro Regional de Matemáticas, Medellín, Colombia, December 2015.

6. *Aspectos combinatorios de las funciones simétricas cuánticas.* XX Coloquio Latinoamericano de Álgebra, Chaclacayo, Perú, December 2014.

Gender, Equity, Diversity and Outreach Activities

Mujeres Matemáticas en Colombia

Mujeres Matemáticas en Colombia is an itinerant photographic exhibition resulting from a research–creation project aimed at increasing the visibility of women mathematicians and challenging gender stereotypes in mathematics. The project is structured in two main stages. The first stage, *creation* (2019–2020), focused on research, documentation and the production of photographic and narrative materials portraying women mathematicians from different regions of the country. The second stage, *circulation* (2020–present), has been dedicated to the dissemination of the exhibition through academic, educational and public cultural spaces.

Since 2020, the exhibition has been presented in universities, schools and public venues such as cultural centers, including the Alliance Française of Bogotá in 2025. Each presentation is systematically accompanied by forums, panel discussions and workshops designed to foster dialogue and critical reflection on gender stereotypes in mathematics, promote inclusive representations of mathematical practice, and engage diverse audiences beyond the academic community.

As founder, curator and project leader, I have coordinated the research, curatorial design and public engagement strategies of the initiative, positioning it as a sustained effort in social appropriation of mathematical knowledge and gender equity through interdisciplinary and creative practices.

Grants and Funded Projects

- *Mujeres Matemáticas en Colombia: Circulation and social appropriation of knowledge*, Pontificia Universidad Javeriana, 2023–2024.

- *Mujeres Matemáticas en Latinoamérica*, International Mathematical Union – Committee for Women in Mathematics.

- *Mujeres Matemáticas en Colombia: Un testimonio gráfico*, Pontificia Universidad Javeriana, 2019–2022.

- *Semillero de Investigación en teoría combinatoria*, Pontificia Universidad Javeriana, 2014–2015.

- *Computational aspects of Quantum Symmetric Functions*, Pontificia Universidad Javeriana, 2010–2011.

Supervision of Students

Supervised more than fifteen undergraduate and master's theses in Mathematics, primarily in combinatorial theory and its applications. This supervision activity has contributed to the training

of new researchers and to the consolidation of the combinatorics community in Colombia.

Academic Service and Peer Review

Served as referee for peer-reviewed mathematics journals and as thesis examiner at the undergraduate, master's and doctoral levels in Mathematics and Mathematics Education. This service reflects sustained participation in peer evaluation processes and contributions to academic quality assurance across disciplinary and interdisciplinary contexts.

Professional Memberships

- Unión Matemática de América Latina y el Caribe (UMALCA), Gender and Diversity Commission.

- Sociedad Colombiana de Matemáticas.

- Committee for Women in Mathematics (CMW), Ambassador.

Languages

- Spanish: Native.

- French: Advanced (DELF B2).

- English: Intermediate.