

# Héctor Martín Peña Pollastri

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## Research Interests

Hopf algebras; Quantum groups; tensor and fusion categories; representation theory.

## Education

- Ph.D. in Mathematics, Universidad Nacional de Córdoba (March 2016–March 2021). Advisor: N. Andruskiewitsch.
- Licenciatura in Physics (B.Sc.) (Equivalent to Master degree in US), Universidad Nacional de Córdoba (March 2010–March 2015). GPA: 9.50/10.0.

## Academic Appointments

- Zorn postdoctoral fellow at Indiana University 08/01/2022 to 05/31/2026. Funded by Simons Foundation.
- Postdoctoral fellow at Universidad Nacional de Córdoba 04/01/2021 to 07/31/2022. Funded by CONICET (equivalent of NSF for Argentina).
- Assistant Professor, simple dedication, position obtained through contest and qualifications assessment. Universidad Nacional de Córdoba, Facultad de Matemática, Astronomía, Física y Computación.
- Doctoral fellow at Universidad Nacional de Córdoba 04/01/2016 to 03/31/2021. Funded by CONICET (equivalent of NSF for Argentina).

## Publications

### Peer-reviewed articles

- [1] Müller, M., Peña Pollastri, H.M., Plavnik, J. *Relation between bicrossed products and crossed extensions of fusion categories*. Rev. Un. Mat. Argentina. 2025. <https://doi.org/10.33044/revuma.5338>.
- [2] N. Andruskiewitsch and H. Peña Pollastri, *On the finite-dimensional representations of the double of the Jordan plane*. Contemporary Mathematics (2025); Volume 814; ISBNs: 978-1-4704-7362-4 (print); 978-1-4704-7865-0 (online). DOI: <https://doi.org/10.1090/conm/814>.
- [3] N. Andruskiewitsch, F. Dumas and H. Peña Pollastri, *On the double of the Jordan plane*. Arkiv för Matematik, 60(2), 213–229.
- [4] N. Andruskiewitsch and H. Peña Pollastri, *On the double of the (restricted) super Jordan plane*. New York Journal of Mathematics, 28 (2022), pp. 1596–1622.

- [5] N. Andruskiewitsch and H. Peña Pollastri, *On the restricted Jordan plane in odd characteristic*. Journal of Algebra Applications, Volume No. 20 (2021), Edition Nro. 01, Article Nro. 2140012.

## Preprints

- [1] Müller, M., Peña Pollastri, H.M., Plavnik, J. *On bicrossed product of fusion categories and exact factorizations*. Preprint: [arXiv:2405.10207](https://arxiv.org/abs/2405.10207) (2024).

## Theses

- PhD thesis: *Los dobles de Drinfeld del Plano de Jordan, del súper Plano de Jordan y sus versiones restringidas*. March 2021. Under the supervision of Dr. N. Andruskiewitsch.
- Undergraduate thesis: *Dinámica asintótica de sistemas cuánticos abierto*. March 2015. Under the supervision of Dr. G. Raggio.

## Teaching

- Fall 2025. Teaching M301: Linear Algebra and applications. Indiana University.
- Spring 2025. Teaching M502: Commutative Algebra. Indiana University. (This is a graduate class)
- Fall 2024. Teaching M119: Survey in Calculus II. Indiana University.
- Fall 2023. Teaching M301: Linear Algebra and applications. Indiana University.
- Spring 2019. Teaching Assistant, UNC, Analysis II.
- Spring 2018. Teaching Assistant, UNC, Analysis II.
- Spring 2018. Teaching Assistant, UNC, Algebra I.
- 08/2017 to 12/2017 - Undergraduate teaching assistant (part time) at Facultad de Matemática, Astronomía y Física, Universidad Nacional de Córdoba. Class: Mathematical Analysis II.
- 08/2016 to 12/2016 - Undergraduate teaching assistant (part time) at Facultad de Matemática, Astronomía y Física, Universidad Nacional de Córdoba. Class: Mathematical Analysis II.
- 08/2014 to 12/2014 - Undergraduate teaching assistant (part time) at Facultad de Matemática, Astronomía y Física, Universidad Nacional de Córdoba. Class: Electromagnetism I.
- 03/2014 to 02/2015 - Undergraduate teaching assistant (part time) at Facultad de Matemática, Astronomía y Física, Universidad Nacional de Córdoba. Class: Mathematical Methods in Physics II, Electromagnetism II.
- 08/2013 to 02/2014 - Undergraduate teaching assistant (part time) at Facultad de Matemática, Astronomía y Física, Universidad Nacional de Córdoba. Class: Catch-up Course in Maths.

## Awards and Honors

- Premio Universidad year 2014, given by Universidad Nacional de Córdoba. Awarded to students with the highest average grade of their career in the time stipulated by the university (five years).

- High school honor award, Colegio secundario de la UTN, La Rioja, Argentina (2009). Awarded every year to the highest average mark student in the last year of high school.

## Mentoring

MIT PRIMES program of research for High School students.

1. 2023: Joseph Vulakh (mentored jointly with Julia Plavnik), project resulted in the production of the following article by Joseph: “Twisted homogeneous racks over the alternating groups”. Communications in Algebra, Volume 51, Issue 9, pages 3745-3755, 2023.
2. 2024: Emma Yang (mentored jointly with Julia Plavnik).
3. 2025 (on-going) Mentored the students Karthik Prasad (mentored jointly with Julia Plavnik and Ben Spencer), Amelia Chen (mentored jointly with Julia Plavnik and Oscar Marquez), Christina Wang (mentored jointly with Julia Plavnik, Daiana da Silva Flores and Saradia Della Flora), Shruti Arun (mentored jointly with Julia Plavnik and Dirceu Bagio) and Lucas Hind (mentored jointly with Julia Plavnik).

Research Experiences for Undergraduates (REU) in Indiana university.

1. 2025: Trisha Kothavale (mentored jointly with Julia Plavnik and Zachary Babyak).

## Service and Outreach

- Organizer of the Quantum algebra seminar in Indiana University. 2024- 2025
- Representative of the PhD students in the board of directors of CIEM. From December 1th 2018 to March 1th 2021.
- Tutor at Tutorship PACENI program of Facultad de Matemática, Astronomía y Física in Universidad Nacional de Córdoba. 2015–2016.
- Jury at the Mathematical Olympiads competition for Córdoba. 2018–2019.
- Organizer of the workshop "Traning Camp Argentina" in 2019. This is a competitive programming workshop focused in algorithms and data structures.

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