

CURRICULUM VITAE

Iván Ezequiel Angiono

Personal details

Place of Birth: General Pico, La Pampa (Argentina), October 16th, 1983.

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Education

- Licenciado en Matemática, National University of La Plata (UNLP), Argentina. February 27th, 2007.
- Doctor en Matemática, FaMAF. National University of Córdoba (UNC), Argentina. March 18th, 2011.
- Advisor: Nicolás Andruskiewitsch. *Title*: Álgebras de Nichols de tipo diagonal

Current Position

- Associate Professor. Nacional University of Córdoba (FaMAF). From 2016.
- Investigador Independiente, CONICET, Argentina. From 2019.

Previous Positions

- Assistant. National University of La Plata (FCE). From 2005 to 2007.
- Assistant Professor. Nacional University of Córdoba (FaMAF) From 2008 to 2013.
- Adjoint Professor. Nacional University of Córdoba (FaMAF) From 2014 to 2016.
- Investigador Asistente/Adjunto, CONICET, Argentina. From 2013 to 2019.

Publications

1. On Nichols algebras with generic braiding (with N.Andruskiewitsch). In "Modules and Comodules". Trends in Mathematics, 47-64 (2008).
2. On Nichols algebras with standard braiding. Alg. Number Th. 3 (2009), 35-106.
3. Basic quasi-Hopf algebras over cyclic groups. Adv. Math. 225 (2010), 3545-3575.
4. Pointed hopf algebras with standard braiding are generated in degree one. (with A. García Iglesias). Contemp. Math. 537 (2011), 57-70.
5. A presentation by generators and relations of Nichols algebras of diagonal type and convex orders on root systems. J. Europ. Math. Soc. 17 (2015), 2643-2671.
6. On pointed Hopf superalgebras (with N. Andruskiewitsch and H. Yamane). Contemp. Math. 544 (2011), 123-140.
7. On Nichols algebras of diagonal type. J. Reine Angew. Math. 683 (2013), 189-251.
8. Nichols algebras of unidentified diagonal type. Comm. Alg 41 (2013), 4667-4693.
9. From Hopf algebras to tensor categories (with N. Andruskiewitsch, A. García Iglesias, B. Torrecillas and C. Vay. Conformal field theories and tensor categories, pages 1-32. Proceedings of a Workshop Held at Beijing International Center for Mathematical Research Series. Bai, C., Fuchs, J., Huang, Y.-Z., Kong, L., Runkel, I., Schweigert, C. (Eds.) 2014, IX, 279 p. 15 illus. Springer.
10. De-equivariantization of Hopf algebras (with C. Galindo and Mariana Pereira). Alg. Rep. Theory 17 (2014), 161-180.
11. Examples of pointed color Hopf algebras (with N. Andruskiewitsch and D. Bagio). J. Algebra Appl. 13, 1350098 (2014) [28 pages] DOI: 10.1142/S0219498813500989
12. Liftings via cocycle deformations (with N. Andruskiewitsch, A. García Iglesias, A. Masuoka and C. Vay). J. Pure Appl. Alg. 218 (2014), 684-703.
13. The R-matrix of quantum doubles of Nichols algebras of diagonal type (with. H. Yamane). J. Math. Phys. 56, No. 2, 021702, 19 p. (2015).
14. Distinguished Pre-Nichols algebras. Transf. Groups 21 (2016), 1-33.

15. On rigidity of Nichols algebras (with M. Kochetov and M. Mastnak). *J. Pure Appl. Alg.* 219 (2015), 5539-5559.
16. The divided powers algebra of a finite-dimensional Nichols algebra of diagonal type (with N. Andruskiewitsch and F. Rossi Bertone). *Math. Res. Lett.* 24 (2017), 619-643.
17. Liftings of Nichols algebras of diagonal type I. Cartan type A (with N. Andruskiewitsch and A. García Iglesias). *Int. Math. Res. Notices* 2017 (2017), 2793–2884.
18. Cohomology and Coquasi-bialgebras in the category of Yetter-Drinfeld Modules (with A. Ardizzoni and C. Menini). *Ann. Scuola Norm. Sup. Pisa Cl. Sci. (5) Vol. XVII* (2017), 609-653.
19. Hopf braces and Yang-Baxter operators (with C. Galindo and L. Vendramin). *Proc. Amer. Math. Soc.* 145 (2017), 1981-1995.
20. Simple Modules of the Quantum Double of the Nichols Algebra of Unidentified Diagonal Type $ufo(7)$ (with N. Andruskiewitsch, A. Mejía and C. Renz). *Comm. Alg.* 46 (2018), 1170-1798.
21. A finite-dimensional Lie algebra arising from a Nichols algebra of diagonal type (rank 2) (with N. Andruskiewitsch and F. Rossi Bertone). *Bull. Belg. Math. Soc. Simon Stevin* 24 (2017), 15-34.
22. Pointed finite tensor categories over abelian groups (with C. Galindo). *Int. J. Math.* 28 (2017), 1750087.
23. On finite dimensional Nichols algebras of diagonal type (with N. Andruskiewitsch). *Bulletin Math. Sci.* 7 (2017), 353-573.
24. A quantum version of the algebra of distributions of SL_2 . *Proc. RIMS* 54 (2018), 141-161.
25. Bruhat order and nil-Hecke algebras for Weyl groupoids (with H. Yamane). *J. Algebra Appl.* 17 (2018) 1850166.
26. On finite GK-dimensional Nichols algebras over abelian groups (with N. Andruskiewitsch and I. Heckenberger). *Memoirs Amer. Math. Soc.*, to appear.
27. Liftings of Jordan and super Jordan planes (with N. Andruskiewitsch and Istvan Heckenberger). *Proc. Edinb. Math. Soc., II. Ser.* 61 (2018), 661-672.
28. Liftings of Nichols algebras of diagonal type II. All liftings are cocycle deformations (with A. García Iglesias). *Selecta Math.*, to appear.
29. Pointed Hopf algebras: a guided tour to the liftings (with A. García Iglesias). *Proceedings of XXII CLA Coloquio Latinoamericano de Algebra. Revista Colombiana de Matemáticas* 53 (2019), 1-44.
30. On Nichols algebras over basic Hopf algebras (with N. Andruskiewitsch), arXiv:1802.00316. *Math. Z.*, to appear.
31. On finite GK-dimensional Nichols algebras of diagonal type (with N. Andruskiewitsch and I. Heckenberger). *Contemp. Math.* 728 (2019), 1-23.
32. On Nichols algebras of infinite rank with finite Gelfand-Kirillov dimension (with N. Andruskiewitsch and I. Heckenberger), *Rend. Lincei Mat. Appl.* 31 (2020), 81–101.
33. Examples of finite-dimensional pointed Hopf algebras in positive characteristic (with N. Andruskiewitsch and I. Heckenberger), arXiv: 1905.03074. To appear in *Progr. Math.*, a volume in honor of Prof. Reshetikhin
34. Pointed Hopf algebras over non abelian groups with decomposable braidings, I (with G. Sanmarco). *J. Algebra* 549 (2020), 78-111.
35. On the Hopf Algebra Structure of the Lusztig Quantum Divided Power Algebras (with N. Andruskiewitsch and C. Vay). To appear in *Annales Mathématiques Blaise Pascal*.

Submitted articles

36. Lie algebras arising from Nichols algebras of diagonal type (with N. Andruskiewitsch and F. Rossi Bertone), arXiv:1911.06586.
37. Cohomology rings of finite-dimensional pointed Hopf algebras over abelian groups, I & II (with N. Andruskiewitsch, J. Pevtsova, S. Witherspoon), arxiv:2004.07149.
38. Poisson orders on large quantum groups (with N. Andruskiewitsch, M. Yakimov), arxiv:2008.11025.
39. Finite GK-Dimensional pre-Nichols algebras of super and standard type (with E. Campagnolo and G. Sanmarco), arxiv:2009.04863.

Articles in preparation

40. Generalized root systems, contragredient Lie superalgebras and Nichols algebras (with N. Andruskiewitsch), in preparation, approx. 100 pp.

Editor

· São Paulo Journal of Mathematical Sciences

Ph.D. Advisees

· Emiliano Campagnolo, PhD student since April 2017 – Universidad de Córdoba, CONICET.

Undergraduate Research Advisees

· Luis Feroni, Universidad Nacional de Córdoba. March 2017 - March 2018. *Topic:* Grupos de Coxeter y Bimódulos de Soergel.

Research stays

Institute Henri Poincaré, from October 6th, 2012 to November 3th, 2012 under the supervision of Prof. Marc Rosso (Institute de Mathematiques Jussieu).

Università di Ferrara, from November 4th, 2012 to December 2nd, 2012.

Summer Post-Doc Fellowship, IMPA, January-February, 2012, under the supervision of Prof. Reimundo Heluani.

Visiting student, Massachusetts Institute of Technology, from February 1st to May 15th, 2009, under the supervision of Prof. Pavel Etingof.

Housay Fellowship, from July 1st to November 30th 2014, Institute Jussieu de Mathematiques, France, under the supervision of Prof. Marc Rosso.

Alexander von Humboldt Fellow, from January 1st to August 31th 2015, Max Planck Institute, Bonn, under the supervision of Prof. Geordie Williamson.

Short visit, Universidad de Los Andes, Colombia - January 2016. Research work with César Galindo and Leandro Vendramin.

Short visits to Marburg Phillip Universität: December 2012, May 2014, May 2019. Research work with Istvan Heckenberger.

Short visit, Hannover Universität, Germany – March 2016. Research work with Michael Cuntz.

SQuaREs at AIM – October 2018 and November 2019. Together with N. Andruskiewitsch, J. Pevtsova and S. Witherspoon.

Short visit, Louisiana State University, US – February 2018. Research work with Milen Yakimov.

Plenary talks:

· *Poisson orders on large quantum groups*. Conferencia plenaria, XXIII Coloquio Latinoamericano de Álgebra. Ciudad de Mexico, August 2019.

· *Finite-dimensional pointed Hopf algebras*. Algebras, Representations and Applications (Satellite Conference ICM), Cusco, August 2018.

· *Nichols algebras of finite Gelfand-Kirillov dimension over abelian groups II*. Hopf Algebras and Tensor Categories, Tianjin, China - September, 2016.

· *On Nichols algebras, Lie superalgebras and generalized root systems*. A Super Quantum Lie Day, Pisa, Italy, February 2015.

· *Finite-dimensional pointed Hopf algebras with abelian coradical*. XXI Encuentro Rioplatense de Álgebra y Geometría Algebraica, Montevideo (Uruguay), December 5th to 9th, 2011.

· *Sistemas de raíces y presentación de álgebras de Nichols de tipo diagonal por generadores y relaciones*. V Encuentro Nacional de Álgebra, La Falda, August 9th to 14th, 2010.

Invited talks:

On Nichols algebras over basic Hopf algebras. International conference on Hopf algebras. Nanjing, China, September 2019.

Examples of finite-dimensional Nichols algebras in positive characteristic. Rings, modules, and Hopf algebras - Almería, May 2019.

On Nichols algebras of finite GK-dimension, part II. AMS Sectional Meetin, San Francisco, California, October 2018.

A quantum version of the algebra of distributions of an algebraic group. Coloquio de Álgebras y Representaciones, Talca, Chile – March, 2017.

Generalized root systems and nil-Hecke algebras. SOMACHI-UMA, Valparaiso (Chile), December, 2016.

A quantum version of the algebra of distributions of SL_2 . Hopf Algebras Conference, Tsukuba, Japan – September, 2016.

Nichols algebras of finite Gelfand-Kirillov dimension over abelian groups II. Hopf Algebras and Tensor Categories, Tianjin, China - September, 2016

Nichols algebras of finite GK-dimension. Coloquio de Álgebras y Representaciones, Córdoba, Argentina - March 2016.

Álgebras de Hopf punteadas de dimensión de Gelfand-Kirillov finita. Reunión Anual de la UMA, Santa Fe, September 2015.

Nichols algebras of finite GK-dimension. BIRS Workshop: Nichols Algebras and Their Interactions with Lie Theory, Hopf Algebras and Tensor Categories, Banff, Canada, September 2015.

Hopf superalgebras, distinguished nichols algebras of diagonal type and power root vectors. ICM 2014, International Congress of Mathematicians, Algebra Session, Seoul, South Korea, August 2014.

Distinguished pre Nichols algebras. Mini-workshop at MFO: Infinite dimensional Hopf algebras, Oberwolfach, Germany, April 14th, 2014.

Nichols algebras of diagonal type and Lie (super)algebras. Mathematical Congress of the Americas (MCA), Guanajuato, Mexico, August 5th, 2013.

About the classification of finite-dimensional pointed Hopf algebras over abelian groups. Séminaire d'Algèbre, Institute Henri Poincaré (Paris), October 22th, 2012.

Nichols algebras of diagonal type, Nichols algebras of diagonal type and convex orders. Mini-workshop at MFO: Nichols algebras and Weyl groupoids, Oberwolfach, September 30th to October 6th, 2012.

Generalized root systems, convex orders and a relation with quantized enveloping algebras of semisimple Lie superalgebras, XV ELAM, Córdoba, May 16th, 2011.

Nichols algebras, pointed Hopf algebras and pointed tensor categories. South American Meeting on Representations of Algebras and Related Topics, Mar del Plata, March 8th al 12th, 2010.

Álgebras de Nichols con trenza estándar. Reunión Anual de la UMA, Mendoza, September 26th, 2008.

Other talks/seminars:

Algebra Seminar, Louisiana State University, February 2019.

Algebra Seminar, Universit'a di Padova, Italy, July 2015.

Algebra Seminar, Cologne University, June 2015.

MPIM-Oberseminar, Bonn, April 2015.

Coloquio de Álgebras y Representaciones, Córdoba, Argentina - March 2015.

Séminaire Caen Cergy Clermont Paris - Théorie des Représentations, IJM, Paris, November 2014.

Séminaire d'algèbre, Université de Lyon, October 2nd, 2014.

Coloquio de álgebras de Hopf, Grupos Cuánticos y Categorías Tensoriales, Santa María, March 2014.

Hochschild cohomology: structure and applications. Buenos Aires, August 2013.

Algebra Seminar, Phillips-Universitat Marburg, December 2012.

Algebra Seminar, Università degli Studi di Padova, November 2012.

Algebra Seminar, Université Blas Pascal (Clermont-Ferrand), October 2012.

IV CLAM, Córdoba, August 9th, 2012.

Hopf algebras and Tensor Categories, Almería (Spain), July 7th, 2011.

Coloquio de álgebras de Hopf, Grupos Cuánticos y Categorías Tensoriales, La Falda, September 2009.

Fellowships

· Alexander von Humboldt, 2015. Stay in Max Planck Institute, Bonn. Host: Geordie Williamson

· Houssay Fellowship, 2014. Stay in Institute Jussieu de Mathématiques, France. Host: Marc Rosso.

- PostDoc Fellowship, CONICET, Argentina. Advisor: Prof. N. Andruskiewitsch. From April 1st, 2012 to June 30th, 2013.
- PhD Fellowship - CONICET, Argentina. Advisor: Prof. Nicolás Andruskiewitsch. From April 1st, 2007 to March 31st, 2012, Argentina.
- Summer Post-Doc Fellowship, IMPA 2012. Stay in IMPA, Brazil. Host: Reimundo Heluani.
- Banco Santander Río S.A Fellowship – Best Argentinian student 2006. Financial support during the stay at MIT. Host: Pavel Etingof.
- Undergraduate Fellowship in Mathematics – "Bernardo A. Houssay" Foundation, 2000 and 2001, for participation in Mathematics Olympiads.

Conferences, Workshops co-organized

Humboldt Kolleg, Coloquio de Álgebras y Representaciones - Quantum 2016. Universidad Nacional de Córdoba, Argentina, March 2016.

Coloquio Latinoamericano de Álgebra – Session on Hopf algebras. Buenos Aires, July 2016.

Coloquio de Álgebras y Representaciones - Quantum 60. Huerta Grande (Córdoba), Argentina, December 2018.

Workshop on Quantum Symmetries, ICTP-SAIFR Sao Paulo, Brazil, October 2019.

Workshop: Hopf algebras and Tensor categories. Hamburg, August 2020 (online).

Prizes

Premio Reconocimiento de Umalca 2020.

Premio Estímulo en Matemática 2018 *Roberto Cignoli* - Academia Nacional de Ciencias Exactas, Físicas y Naturales.

Premio *Ernesto Gaviola* 2016 en Matemática - Academia Nacional de Ciencias.

Premio *10 Jóvenes Sobresalientes 2012* - Bolsa de Comercio de Córdoba.

Premio Santander Río Universidades - Mejor Egresado 2006 a nivel nacional.

Premio *Joaquín V. González* 2006 - Mejores promedios de la UNLP.

Premio de la Provincia de Buenos Aires, 2006 - Mejores promedios de la UNLP.

Several Math Olympiad prizes, including: *Silver Medal* International Math Olympiads 2001, *Bronze Medal* International Math Olympiads 2000, *Gold Medal* Iberoamerican Math Olympiads 2001.