

Ilaria Colazzo, Ph.D.

✉ ilariacolazzo@gmail.com

📄 on ArXiv

℞ on ResearchGate

🌐 <http://www.ilariacolazzo.info/>

🔗 on MathSciNet

📖 on Google Scholar

🆔 0000-0002-2713-0409

📄 56433657700

🔗 on zbMath

Current Position

- 📌 **University of Exeter, Exeter (UK)**
Postdoctoral Research fellow

Research Interest

- 📌 Algebra, Set-theoretical solutions of the Yang-Baxter equation, Skew braces, trusses and generalisations, Regular subgroups of the holomorph, Hopf-Galois extensions, Set-theoretical solutions of the pentagon equation

Employment History

- 2021 – ···· 📌 **Postdoctoral Research Fellow in Mathematics.** University of Exeter, Exeter, UK.
- 2019 – 2021 📌 **Postdoctoral Researcher in Mathematics.** Vrije Universiteit Brussel, Brussels, Belgium.
- 2017 – 2018 📌 **Postdoctoral Researcher in Mathematics.** University of Salento, Lecce, Italy.
- 2014 – 2017 📌 **Ph.D. student in Mathematics and Informatics,** University of Salento, Lecce, Italy.

Education

- 2014 – 2017 📌 **Ph.D., Mathematics and Informatics,** University of Salento, Lecce, Italy.
Thesis title: *Left Semi-Braces and the Yang-Baxter equation.*
- 2009 – 2012 📌 **M.S., Mathematics,** University of Salento, Lecce, Italy.
Thesis title: *Clifford algebras.*
- 2005 – 2009 📌 **Licence (it: Licenza Scuola Superiore ISUFI Pre-Laurea I livello),** Scuola Normale Superiore ISUFI, University of Salento, Lecce, Italy.
Thesis title: *Development of geometry manipulation tools for atomistic simulations.*
- 2005 – 2008 📌 **B.S., Mathematics,** University of Salento, Lecce, Italy.
Thesis title: *On the Galois group of a polynomial of degree five.*

Research Publications

Preprint

- 1 **I. Colazzo,** E. Jespers, Ł. Kubat, and A. Van Antwerpen, “Structure algebras of finite set-theoretic solutions of the Yang–Baxter equation,” 2023. arXiv: 2305.06023.
- 2 **I. Colazzo,** M. Ferrara, and M. Trombetti, “On derived-indecomposable solutions of the Yang–Baxter equation,” 2022. arXiv: 2210.08598.
- 3 **I. Colazzo,** E. Jespers, Ł. Kubat, A. Van Antwerpen, and C. Verwimp, “Finite idempotent set-theoretic solutions of the Yang–Baxter equation,” 2022. arXiv: 2212.07361.

Journal Articles

- 4 **I. Colazzo,** E. Jespers, A. Van Antwerpen, and C. Verwimp, “Left non-degenerate set-theoretic solutions of the Yang–Baxter equation and semitrusses,” *J. Algebra*, vol. 610, pp. 409–462, 2022, ISSN: 0021-8693.
🔗 doi: 10.1016/j.jalgebra.2022.07.019.

- 5 F. Catino, **I. Colazzo**, and P. Stefanelli, "Set-theoretic solutions to the Yang-Baxter equation and generalized semi-braces," *Forum Math.*, vol. 33, no. 3, pp. 757–772, 2021, ISSN: 0933-7741. [DOI: 10.1515/forum-2020-0082](#).
- 6 **I. Colazzo** and A. Van Antwerpen, "The algebraic structure of left semi-trusses," *J. Pure Appl. Algebra*, vol. 225, no. 2, Paper No. 106467, 15, 2021, ISSN: 0022-4049. [DOI: 10.1016/j.jpaa.2020.106467](#).
- 7 F. Catino, **I. Colazzo**, and P. Stefanelli, "The matched product of set-theoretical solutions of the Yang-Baxter equation," *J. Pure Appl. Algebra*, vol. 224, no. 3, pp. 1173–1194, 2020, ISSN: 0022-4049. [DOI: 10.1016/j.jpaa.2019.07.012](#).
- 8 F. Catino, **I. Colazzo**, and P. Stefanelli, "The matched product of the solutions to the Yang-Baxter equation of finite order," *Mediterr. J. Math.*, vol. 17, no. 2, Paper No. 58, 22, 2020, ISSN: 1660-5446. [DOI: 10.1007/s00009-020-1483-y](#).
- 9 **I. Colazzo**, E. Jespers, and Ł. Kubat, "Set-theoretic solutions of the pentagon equation," *Comm. Math. Phys.*, vol. 380, no. 2, pp. 1003–1024, 2020, ISSN: 0010-3616. [DOI: 10.1007/s00220-020-03862-6](#).
- 10 F. Catino, **I. Colazzo**, and P. Stefanelli, "Skew left braces with non-trivial annihilator," *J. Algebra Appl.*, vol. 18, no. 2, pp. 1950033, 23, 2019, ISSN: 0219-4988. [DOI: 10.1142/S0219498819500336](#).
- 11 F. Catino, **I. Colazzo**, and P. Stefanelli, "Semi-braces and the Yang-Baxter equation," *J. Algebra*, vol. 483, pp. 163–187, 2017, ISSN: 0021-8693. [DOI: 10.1016/j.jalgebra.2017.03.035](#).
- 12 F. Catino, **I. Colazzo**, and P. Stefanelli, "Regular subgroups of the affine group and asymmetric product of radical braces," *J. Algebra*, vol. 455, pp. 164–182, 2016, ISSN: 0021-8693. [DOI: 10.1016/j.jalgebra.2016.01.038](#).
- 13 F. Catino, **I. Colazzo**, and P. Stefanelli, "On regular subgroups of the affine group," *Bull. Aust. Math. Soc.*, vol. 91, no. 1, pp. 76–85, 2015, ISSN: 0004-9727. [DOI: 10.1017/S000497271400077X](#).

Other Outputs

- 1 T. Brzeziński, **I. Colazzo**, A. Doikou, and L. Vendramin, "Mini-workshop: Skew braces and the yang-baxter equation," 2023. [DOI: 10.14760/OWR-2023-9](#).
- 2 **I. Colazzo**, "Braces: Between regular subgroups and solutions of the Yang-Baxter equation," English, 2022, pp. 35–38. [DOI: 10.53136/97912599432867](#).
- 3 **I. Colazzo**, "Left semi-braces and the Yang-Baxter equation," Ph.D. Thesis, Università del Salento, 2017.

Talks

Upcoming

- 1 **I. Colazzo**, "Derived-indecomposable solutions and skew braces with a finiteness condition," in Omaha/Online, 29/05–02/06/2023, Hopf algebras and Galois module theory 2023, May 29, 2023.
- 2 **I. Colazzo**, "Indecomposable solutions to the Yang-Baxter equation," in Lecce (Italy), 5-9/06/2023, Advances in Group Theory and Applications 2023, Jun. 5, 2023.

Invited talks at conferences and workshops



- 3 **I. Colazzo**, "Derived-indecomposable solutions and skew braces whose elements have a finite number of conjugates," in Oberwolfach (Germany), 26/02–03/03/2023, Oberwolfach mini-workshop: Skew Braces and the Yang–Baxter Equation, Feb. 26, 2023.
- 4 **I. Colazzo**, "The structure monoid of set-theoretic solutions to the YBE," in Keele University (UK), 18/04/2023, The Interplay Between Skew Braces and Hopf-Galois Theory, Apr. 18, 2023.

- 5 **I. Colazzo**, “YB-semitrusses and left non-degenerate solutions to the Yang-Baxter equation,” in Omaha (US)/Online, 30/05–03/06/2022, Hopf algebras and Galois module theory, Jun. 1, 2022.
- 6 **I. Colazzo**, “YB-semitrusses with associated bijective solutions,” in Swansea University (UK) - Online, 04–06/01/2022, Braces in Bracelet Bay, Jan. 5, 2022.
- 7 **I. Colazzo**, “Skew braces and solutions of the Yang-Baxter equation,” in Online, 24–27/05/2021, Hopf algebras and Galois module theory, May 26, 2021.
- 8 **I. Colazzo**, “Braces: Between regular subgroups and solutions of the Yang-Baxter equation,” in L’Aquila (Italy), 1st workshop Algebra for Cryptography, Oct. 11, 2019.
- 9 **I. Colazzo**, “The matched product of the solutions of the Yang-Baxter equation,” in Malta, 11–15/03/2018, Noncommutative, non-associative structures, braces, and applications, Mar. 13, 2018.



Selected seminar talks

- 10 **I. Colazzo**, “Combinatorial solutions to the Yang-Baxter equation and applications,” in Louvain-La-Neuve (Belgium), Séminaire de topologie algébrique, Jan. 17, 2023.
- 11 **I. Colazzo**, “Combinatorial solutions to the Yang-Baxter equation and skew braces,” in Keele University (UK), 19/04/2023, Discrete Maths seminar series, Apr. 19, 2023.
- 12 **I. Colazzo**, “Retractability problem for quasi-linear cycle sets,” in University of Warsaw (Poland), Seminar Algebra, Oct. 20, 2022.
- 13 **I. Colazzo**, “Set-theoretic solution of the Pentagon Equation: The involutive case,” in Vrije Universiteit Brussel (Belgium), QA Seminar, May 18, 2022.
- 14 **I. Colazzo**, “Set-theoretic solutions of the Yang-Baxter equation and related associative structure,” in University of Padua (Italy), Algebra Seminar, Apr. 22, 2022.
- 15 **I. Colazzo**, “Set-theoretic solutions to the Yang-Baxter equation and skew braces,” in University of Leeds (UK), Algebra Seminar, Jun. 12, 2022.
- 16 **I. Colazzo**, “Bijective set-theoretic solutions of the Pentagon Equation,” in University of Milan – Bicocca, Milan (Italy), Al@Bicocca take-away, Nov. 12, 2021.
- 17 **I. Colazzo**, “Involutive solutions of the Pentagon Equation,” in Vrije Universiteit Brussel (Belgium), ALGB Seminar, May 28, 2020.
- 18 **I. Colazzo**, “The algebraic structure of brace-like semi-trusses,” in Vrije Universiteit Brussel (Belgium), ALGB Seminar, Feb. 11, 2020.
- 19 **I. Colazzo**, “Regular subgroups and left semi-braces,” in Vrije Universiteit Brussel (Belgium), ALGB Seminar, Oct. 13, 2018.
- 20 **I. Colazzo**, “Regular subgroups of the affine group,” in University of Warsaw (Poland), Seminar Algebra, Nov. 24, 2016.



Conferences Organised

- 05 – 10/05/2024  BIRS workshop
Skew braces, braids and the Yang-Baxter equation
Banff International Research Station (Alberta, Canada)
(organisers: **I. Colazzo**, J. Plavnik, E. Rowell, and L. Vendramin)
- 19 – 25/06/2023  *Groups, rings and the Yang-Baxter equation*
Blankenberge (Belgium)
(organisers: **I. Colazzo**, A. Van Antwerpen, and L. Vendramin)





Conferences Organised (continued)

- 26/02–03/03/2023  Oberwolfach mini-workshop (2309a)
Skew Braces and the Yang–Baxter Equation
Oberwolfach (Germany)
(organisers: **I. Colazzo**, T. Brzezinski, A. Doikou, and L. Vendramin)
- 10–16/07/2022  *The algebra of the Yang–Baxter equation*
Bedlewo (Poland)
(organisers: **I. Colazzo**, J. Okniński, and L. Vendramin)


Other organisational experiences

- 2019 –  I also organised two conferences for young researchers in algebras: Conference Young Researchers Algebra Conference 2023 (L'Aquila, Italy), and Conference Young Researchers Algebra Conference 2019 (Napoles, Italy).
- 2015 – 2019  I co-organised (with F. Catino) the Algebra Reading Seminar University of Salento, Department of Mathematics and Physics “Ennio De Giorgi”

Research Visits


- 01 – 06/05/2023  Research In Residence @ CIRM, France
(with G. Janssens) – 1 week
- 17 – 21/04/2023  Postdoctoral Researcher Visiting @ Keele University
(with P. Truman) – 1 week
- 15 – 21/01/2023  Postdoctoral Researcher Visiting @ Vrije Universiteit Brussel, Belgium
(host L. Vendramin) – 1 week
- 16 – 21/05/2022  Postdoctoral Researcher Visiting @ Vrije Universiteit Brussel, Belgium
(host L. Vendramin) – 1 week
- 01/09 – 30/11/2018  Postdoctoral Researcher Visiting @ Vrije Universiteit Brussel, Belgium
(host E. Jespers) – 3 months
- 15/11 – 20/12/2016  Visiting PhD Student @ University of Warsaw, Poland
(host J. Okniński) – 1 month

Grants

- 2021 – 2022  The Interplay Between Skew Braces and Hopf-Galois Theory (InterplaySbHG)
Joint Research Groups (Scheme 3) supported LMS Grants £1,500

Teaching experience

MAGIC (UK), a collaboration of 22 universities, coordinated by the University of Exeter

- Lecturer  **MAGIC₁₁₁ – Introduction to set-theoretic solutions to the Yang–Baxter equation and skew braces Course for PhD students** AY 2022 – 23
Duties included preparing and delivering lectures, preparing study material and exercises, marking homework and the final assignment.

University of Exeter, Exeter (UK)

- Tutor  **MTH₂₀₁₀ – Groups, Rings and Fields**
(Course M. Saidi) AY 2022 – 23

Teaching experience (continued)

- 📌 **MTH1001 – Mathematical structures**
(Course G. Marasingha) AY 2021 – 22
Duties included preparing lectures for tutorial classes, fielding of student inquiries, and marking homework.

University of Salento, Lecce (Italy)

- Instructor 📌 **Mathematics preliminary course for bachelor's students in Mathematics and Physics** AY 2021 – 22
Duties included preparing lectures, fielding of student inquiries, and office hours.
- Teaching assistant 📌 **Group Theory** (Course F. Catino) AY. 2015 – 18
- 📌 **Algebra II** (Course M. M. Miccoli) AY. 2015 – 16
Duties included preparing lectures for tutorial classes for recitation classes and office hours.
- Tutor 📌 **Algebra I and II** (Course F. Catino and M. M. Miccoli) AY. 2018 – 19
- 📌 **Algebra I** (Course F. Catino) AY. 2016 – 17
Duties included preparing lectures for tutorial classes, fielding of student inquiries, and office hours.
- Exam committee 📌 Exam committee member (it Cultore della materia) July 2016 – July 2019
Duties included conducting and grading final exams.

Other Experience

Refereeing activity

- 📌 Annales Henri Poincare - A Journal of Theoretical and Mathematical Physics (AHPO), Publicacions Matemàtiques, Journal of the London Mathematical Society (JLMS), International Mathematics Research Notices, Journal of Algebra, Journal of Algebra and its Applications, Communications in Algebra, Rendiconti del Circolo Matematico di Palermo Series 2.

Programming Languages

- 📌 GAP, Python.

Language

- 📌 Italian (native), English (fluent), French (waystage).

References

Available on Request