

Curriculum Vitæ et Studiorum

Claudio Quadrelli

Personal Data:

Day of birth: 14/08/1986

Nationality: Italy

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Research Interests: Galois Theory, Profinite and pro- p groups, Cohomology of groups, Algebraic Number Theory, Lie algebras and graded structures associated to groups.

Positions

03/2022 - current: **Assistant Professor (*Ricercatore a Tempo Determinato B*)**
Department of Science and High-Tech, University of Insubria (Italy).

10/2021 - 02/2022: **Assistant Professor (*Ricercatore a Tempo Determinato A*)**
Department of Mathematics and Applications, University of Milano-Bicocca (Italy).

04/2017 - 03/2021: **Post-Doctoral Fellow (*Assegnista di Ricerca*)**
Department of Mathematics and Applications, University of Milano-Bicocca (Italy). PI: Prof. Th.S. Weigel

11/2016 - 03/2017: **Post-Doctoral Fellow (*Assegnista di Ricerca*)**
Department of Mathematics "U. Dini", University of Firenze (Italy). PI: Prof. O. Puglisi

09/2015 - 09/2016: **Post-Doctoral Fellow**
Center for Advanced Studies in Mathematics, Ben-Gurion University of the Negev (Israel). PI: Prof. I. Efrat

Education

01/2011 - 02/2015: **Doctor of Philosophy in Mathematics and
Dottore di Ricerca in Matematica Pura e Applicata**
(double joint degree)
University of Western Ontario (Canada) and University of Milano-Bicocca (Italy). Advisors: Prof. J. Minac e Prof. Th.S.

Weigel. Title of the thesis: «*Cohomology of absolute Galois groups*», available at <https://ir.lib.uwo.ca/etd/2600/>.

10/2008 - 10/2010: M.Sc in Mathematics (*Laurea Magistrale in Matematica*)

Final mark: 110/110 summa cum laude. University of Milano-Bicocca (Italy).

10/2005 - 07/2008: B.Sc in Mathematics (*Laurea Triennale in Matematica*)

Final mark: 110/110 summa cum laude. University of Milano-Bicocca (Italy).

Awarded with the **National Scientific Qualification** as Full [Associate] Professor (*Abilitazione Scientifica Nazionale alle funzioni di professore universitario di Seconda Fascia nel s.c. 01/A2 - Geometria e Algebra*), achieved on **01/02/2022**.

Grants and Awards

Awards and Prizes

- **2017:** “*Giovani Talenti*” Prize, University of Milano-Bicocca and Accademia dei Lincei (Italy).
- **2013:** *Graduate Thesis Research Award*, Faculty of Science, University of Western Ontario (Canada).
- **2011:** *Master Thesis Prize*, Istituto Nazionale di Alta Matematica “F. Severi” - INdAM (Italy).

Scientific Publications

Published Articles:

1. *Bloch-Kato pro- p groups and locally powerful groups*. *Forum Math.* 26 (2014), no. 3, 793-814. Available at [arXiv:1211.4504](https://arxiv.org/abs/1211.4504).
2. *Finite quotients of Galois pro- p groups*. *Ann. Math. Québec* 39 (2015), no. 1, 113-120. Available at [arXiv:1503.06439](https://arxiv.org/abs/1503.06439).
3. *Detecting fast solvability of equations via small powerful Galois groups*. With S.K. Chebolu and J. Minac. *Trans. Amer. Math. Soc.*, 367 (2015), no. 2,

- 8439-8464. Available at [arXiv:1310.7623](https://arxiv.org/abs/1310.7623).
4. ***A group theoretical version of Hilbert's theorem 90.*** With Th. Weigel. *Bull. Lond. Math. Soc.* 47 (2015), no. 4, 704-714. Available at [arXiv:1502.01146](https://arxiv.org/abs/1502.01146).
 5. ***The Kummerian property and maximal pro- p Galois groups.*** With I. Efrat. *J. Algebra* 525 (2019), 284-310, Available at [arXiv:1707.07018](https://arxiv.org/abs/1707.07018).
 6. ***Profinite groups with a cyclotomic p -orientation.*** With Th. Weigel, *Doc. Math.* 25 (2020), 1881-1916. Available at [arXiv:1811.02250](https://arxiv.org/abs/1811.02250).
 7. ***Right-angled Artin groups and enhanced Koszul properties.*** With A. Cassella, *J. Group Theory* 24 (2021), no. 1, 17-38. Available at [arXiv:1907.03824](https://arxiv.org/abs/1907.03824).
 8. ***Koszul algebras and quadratic duals in Galois cohomology.*** With J. Minac, F. Pasini and N.D. Tân, *Adv. Math.* 380 (2021), paper no. 107569. Available at [arXiv:1808.01695](https://arxiv.org/abs/1808.01695).
 9. ***Pro- p groups with few relations and universal Koszulity.*** *Math. Scand.* 127 (2021), no. 1, 28-42. Available at [arXiv:2003.09186](https://arxiv.org/abs/2003.09186).
 10. ***One-relator maximal pro- p Galois groups and the Koszulity conjectures.*** *Q. J. Math.* 72 (2021), no. 3, 835-854. Available at [arXiv:1601.04480](https://arxiv.org/abs/1601.04480).
 11. ***Two families of pro- p groups that are not absolute Galois groups.*** *J. Group Theory* 25 (2022), no. 1, 25-62. Available at [arXiv:2011.03233](https://arxiv.org/abs/2011.03233).
 12. ***Oriented pro- l groups with the Bogomolov-Positselski property.*** With Th. Weigel, *Res. Number Theory* 8 (2022), no. 2, paper no. 21. Available at [arXiv:2103.12438](https://arxiv.org/abs/2103.12438).
 13. ***Galois-theoretic features for 1-smooth pro- p groups.*** *Canad. Math. Bull.* 65 (2022), no. 2, 525-541. Available at [arXiv:2004.12605](https://arxiv.org/abs/2004.12605).
 14. ***1-smooth pro- p groups and Bloch-Kato pro- p groups.*** *Homology Homotopy Appl.* 24 (2022), no. 2, 401-415. Available at [arXiv:1904.00667](https://arxiv.org/abs/1904.00667).
 15. ***Mild pro- p groups and the Koszulity conjectures.*** With F. Pasini and N.D. Tân, *Expo. Math.* 40 (2022), no. 3, 432-455. Available at [arXiv:2106.03675](https://arxiv.org/abs/2106.03675).
 16. ***On pro- p groups with quadratic Galois cohomology.*** With I. Snopce and M. Vannacci, *J. Algebra* 612 (2022), 636-690. Available at [arXiv:1906.04789](https://arxiv.org/abs/1906.04789).

Accepted:

17. ***Integrals of groups II.*** With J. Araujo, P. Cameron, C. Casolo and F. Matucci, *Israel J. Math.* In press. Available at [arXiv:2008.13675](https://arxiv.org/abs/2008.13675).
18. ***Groups of p -absolute Galois type that are not absolute Galois groups.*** With S. Blumer and A. Cassella., *J. Pure Appl. Algebra.* In press. Available at

[arXiv: 2112.06744](https://arxiv.org/abs/2112.06744).

Submitted:

19. *Chasing maximal pro- p Galois groups with 1-cyclotomicity*. Available at [arXiv:2106.00335](https://arxiv.org/abs/2106.00335).

20. *Massey products in Galois cohomology and the elementary type conjecture*. Available at [arXiv:2203.16232](https://arxiv.org/abs/2203.16232).

Teaching:

03/2023-06/2023: Teacher of the courses «Fundamentals of Advanced Algebra» and «Advanced Algebra B», Department of Science and High-Tech, University of Insubria.

03/2022-06/2022: Teacher of the course «Advanced Algebra A», Department of Science and High-Tech, University of Insubria.

10/2021-01/2022: T.A. (*esercitatore*) for the course «Institutions of Mathematics» (teachers: Prof. D. Bertacchi and prof. P. Spiga), Department of Pedagogy “R. Massa”, University of Milano-Bicocca.

10/2021-01/2022: T.A. (*esercitatore*) for the course «Linear Algebra and Geometry» (teacher: Prof. F. Dalla Volta), Department of Mathematics and Applications, University of Milano-Bicocca.

01/2021-03/2021: Teacher of the course «Profinite and pro- p groups» for the joint PhD program in Mathematics, University of Pavia – University of Milano-Bicocca – Istituto Nazionale di Alta Matematica - INdAM “F. Severi”.

Webpage: <https://sites.google.com/view/jointphd/courses>.

02/2020-06/2020: T.A. (*esercitatore*) for the course «Geometry and Linear Algebra» (teacher: Prof. M. Pedroni), Department of Engineering and Applied Sciences, University of Bergamo.

09/2019-01/2020: T.A. (*esercitatore*) for the courses «Calculus I» (teacher: Prof. L. Grenié) and «Calculus II» (teacher: Prof G.D. Furioli), Department of Engineering and Applied Sciences, University of Bergamo.

03/2018-07/2018: T.A. (*esercitatore*) for the course «Linear Algebra and Geometry» (teacher: Prof. M.G. Kuhn), Department of Computer Science (DISCO), University of Milano-Bicocca.

10/2017-02/2018: T.A. (*esercitatore*) for the course «Calculus II» (teacher: Prof. V. Felli), Department of Material Sciences, University of Milano-Bicocca.

03/2015-07/2015: T.A. (*esercitatore*) for the course «Linear Algebra and Geometry» (teacher: Prof.ssa M.G. Kuhn), Department of Computer Science (DISCO), University of Milano-Bicocca.

03/2015-07/2015: T.A. (*esercitatore*) for the course «Algebra II» (teacher: Prof. Th.S. Weigel), Department of Mathematics and Applications, University of Milano-Bicocca.

03/2014-05/2014: T.A. (*esercitatore*) for the course «Didactics of Mathematics» (teacher: Prof. M. Cazzola), Department of Pedagogy “R. Massa”, University of Milano-Bicocca.

Talks and Conferences

Invited Talks and Seminars:

- Webinar: «Nets for fishing absolute Galois pro- p groups», at the seminar series *AGAG – Arithmetic Geometry and Algebraic Groups*, Southern University of Science and Technology (China), 16/05/2022.
Webpage: <https://seminaragag.github.io/>
- Webinar: «The Bogomolov-Positselski Conjecture for maximal pro- p Galois groups», at the seminar series *QFLAG Online Seminar*, Universities of British Columbia and Ottawa (Canada), 30/03/2022.
Webpage: <https://qflag.org/>
- Talk: «Who wants to be an absolute Galois group?», at the CIRM conference *New trends around profinite groups*, Levico Terme (Italy), 13-17/09/2021.
Webpage: <http://reh.math.uni-duesseldorf.de/~internet/Levico2020/>
- Webinar: «1-cyclotomic pro- p groups», at the seminar series *Bilbao Algebra Seminar*, University of the Basque Country (Spain), 21/04/2021.
Webpage: <https://sites.google.com/site/bilbaoalgebraseminar/>
- Web-lecture: «Mathematics and mathematicians in the Italian Renaissance», for the course *History of Mathematics* (course teacher: Prof. Sunil K. Chebolu), Illinois State University (USA), 15/10/2020.
<https://news.illinoisstate.edu/2021/01/humanitys-dreams-woven-through-mathematics/>
- Talk: «Pro- p groups with quadratic cohomology and generalised pro- p RAAGs», at the conference *Group Theory Days in Düsseldorf*, University di Düsseldorf (Germany), 20-21/01/2020.
Webpage: <http://reh.math.uni-duesseldorf.de/~internet/GTD2020/index.html>
- Lecture: «Maximal pro- p quotients of absolute Galois groups: Questions and Answers», at the ICMAT school *Advanced School on representations of pro- p groups*, Instituto de Ciencias Matemáticas (Spain), 8-12/07/2019.
Webpage: <https://www.icmat.es/congresos/2019/ASRPG/>
- Talk: «The Bloch-Kato conjecture and maximal pro- p Galois groups», University of Düsseldorf (Germany), 16/04/2018; and University of Strasbourg (France),

20/03/2018.

- Talk: «The Kummerian property for pro- p groups», at the conference *Topics in Group Theory and representations*, Gargnano (Italy), 10/10/2017.
Webpage: <http://staff.matapp.unimib.it/~ldm70/>
- Talk: «Absolute Galois groups of fields and the cyclotomic character», at the BIRS conference *Nilpotent fundamental groups*, Banff International Research Station for Mathematical Innovation and Discoveries (Canada), 19-23/06/2017.
Webpage: <https://www.birs.ca/events/2017/5-day-workshops/17w5112>
- Talk: «Knots, Galois groups and Massey products», at the seminar series *Seminari dei baby-geometri*, University of Pisa (Italy), 9/02/2017.
Webpage: <https://www.dm.unipi.it/webnew/it/dottorato/seminari-dei-baby-geometri>
- Talk: «A Massey salad with coho(bio)logical products, Galois grapes and knots», at the seminar series *Insalate di matematica*, University of Milano-Bicocca (Italy), 25/11/2016.
Webpage: <https://sites.google.com/view/insalate-di-matematica/speaker/20162017>
- Talk: «Koszul pro- p groups», at the conference *1st Joint Meeting Brazil-Italy in Mathematics* (Group Theory session), Instituto de Matemática Pura e Aplicada - IMPA (Brazil), 29-31/08/2016.
Webpage: <https://www.sbm.org.br/jointmeeting-italy/>
- Talk: «Good (and bad) candidates for maximal pro- p Galois groups», at the seminar series *Field Arithmetic seminars*, Tel-Aviv University (Israel) 13/01/2016.
Webpage: <http://www.math.tau.ac.il/~haran/Field-Arithmetic-Seminar/year2015-2016/>
- Talk: «Koszul algebras, quadratic duals and Galois cohomology», Israel Institute of Technology-Technion (Israel), 3/12/2015.
- Talk: «Koszul algebras, quadratic duals and Galois cohomology», Bar-Ilan University (Israel), 1/12/2015.
- Talk: «Galois pro- p groups on a diet of roots of the field», Illinois State University (USA), 25/02/2014.
- Talk: «Upper and lower bounds for maximal pro- p Galois groups», conference *Number Theory satellite session of the CMS Summer Meeting 2013*, Dalhousie University (Canada), 8/06/2013.

Communications at Italian Mathematical Union congresses:

- «The Bloch-Kato conjectures *without motives*» (Algebra session), XXI Congresso UMI, Pavia, 2-7/09/2019.
- «A group theoretic version of Hilbert 90» (Algebra session), XX Congresso UMI,

Siena, 7-12/09/2015.

Organization Expertise

- Workshop *New trends around profinite groups 2022*, hosted by the Riemann International School in Mathematics (RISM), Varese (Italy), September 2022.
Webpage: <https://www.rism.it/events/around-profinite-groups>
- Algebra Seminar «*Al@Bicocca*» of the Department of Mathematics and Applications (webinar series «*Al@Bicocca take-away*» during COVID19 emergency), University of Milano-Bicocca, years 2018-19, 2019-20, and 2020-21.
Webpage: <https://sites.google.com/unimib.it/albicocca/seminario-di-algebra>
- Conference *GABY20 - Groups and Algebras in Bicocca for Young algebraists*, University of Milano-Bicocca (Italy), June 2020, with a funding from GNSAGA-INdAM, member of the scientific commission; postponed to June 2022 (GABY22) due to COVID19.
Webpage: <http://staff.matapp.unimib.it/~gaby/gaby2020/index.html>
- Conference *GABY18 - Groups and Algebras in Bicocca for Young algebraists*, University of Milano-Bicocca (Italy), May 2018, with a funding from GNSAGA-INdAM, member of the scientific and organizing commission.
Webpage: <http://staff.matapp.unimib.it/~gaby/gaby2018/index.html>
- Colloquium *Insalate di Matematica* del Department of Mathematics and Applications, University of Milano-Bicocca (Italy), year 2017-18.
Webpage: <https://sites.google.com/view/insalate-di-matematica/home>
- Conference *3rd Algebra and Number Theory Day*, Center for Advanced Studies in Mathematics, Ben-Gurion University of the Negev (Israel), 23/06/2016.
Webpage: <https://www.math.bgu.ac.il/en/research/events/ant2016.pdf>

Other Academic Activities

Review Activities:

Referee for the peer-review of articles for the following mathematical journals:

- *Bull. London Math. Soc.*, *Canadian J. Math.*, *Compositio Math.*, *Czechoslovak Math. J.*, *J. Algebra*, *J. Pure Appl. Algebra*, *J. Inst. Math. Jussieu*.

Referee for the evaluation of research proposal submitted for the application to personal research grants, for the *Israel Science Foundation*.

Memberships:

- **Group GNSAGA** - Istituto Nazionale di Alta Matematica “F. Severi” (INdAM), since 2011.

Links:

- MathSciNet: <http://www.ams.org/mathscinet/MRAuthorID/1063146>
- zbMATH: <https://www.zbmath.org/authors/quadrelli.claudio>
- SCOPUS: <https://www.scopus.com/authid/detail.uri?authorId=56205655400>
- ORCID: <https://orcid.org/0000-0002-7819-5042>
- ResearchGate: https://www.researchgate.net/profile/Claudio_Quadrelli

Languages

- **Italian:** mother tongue.
- **English:** fluent.

Le dichiarazioni rese nel presente curriculum sono da ritenersi rilasciate ai sensi degli artt. 46 e 47 del D.P.R. 445/2000.