

Andrea Appel

Curriculum Vitae

Università di Parma
Parco Area delle Scienze, 53/A
43124, Parma (PR), ITALY
✉ andrea.appel@unipr.it
🌐 www.aqualab.unipr.it/appel

Current Employment

2023 **Associate Professor in Algebra**, *Università di Parma*, Italy

Previous Appointments

2020 - 2022 **Assistant Professor**, *Università di Parma*, Italy

2017 - 2020 **Research Fellow**, *University of Edinburgh*, UK

2014 - 2017 **Assistant Professor**, *University of Southern California*, Los Angeles, USA

2013 **Research Fellow**, *Hebrew University of Jerusalem*, Israel

Education

2013 **Ph.D. in Mathematics**, *Northeastern University*, Boston, USA

Advisor: Prof. V. Toledano Laredo

2008 **M.Sc. in Mathematics**, *Sapienza Università di Roma*, Italy

Advisor: Prof. C. De Concini.

2006 **B.Sc. in Mathematics**, *Sapienza Università di Roma*, Italy

Advisor: Prof. M.J. de Resmini

Academic Qualification

2023-2034 Qualified as Full Professor in Algebra and Geometry for the Italian Academic System.
Abilitazione Scientifica Nazionale alle funzioni di professore universitario di Prima Fascia nel Settore Concorsuale 01/A2 - Algebra e Geometria. Validità: 24/10/2023 - 24/10/2034.

Active Research Group Affiliations

INdAM, *Istituto Nazionale di Alta Matematica*

Research Group GNSAGA - Gruppo Nazionale Strutture Algebriche, Geometriche ed Applicazioni.

INFN, *Istituto Nazionale di Fisica Nucleare, Gruppo Collegato di Parma*

Research Group GAST - Gauge and String Theory.

CaLISTA, *COST Action 2022-2026*

CA21109 - Cartan geometry, Lie, Integrable Systems, quantum group Theories for Applications.

Publications

- [16] *The R-matrix of the affine Yangian* (with S. Gautam and C. Wendlandt).
Journal of the European Mathematical Society (2026), 57pp. Accepted for publication.
[JEMS] [arXiv]
- [15] *Trigonometric K-matrices for finite-dimensional representations of quantum affine algebras* (with B. Vlaar).
Journal of the European Mathematical Society (2025), 41pp. Published online first.
[DOI] [arXiv]
- [14] *Boundary transfer matrices arising from quantum symmetric pairs* (with B. Vlaar).
Indagationes Mathematicae (2025), 33pp. Article in press.
[DOI] [arXiv] - Special Issue dedicated to Tom Koornwinder.
- [13] *Tensor K-matrices for quantum symmetric pairs* (with B. Vlaar).
Communications in Mathematical Physics 406 (2025), 42pp.
[DOI] [arXiv]

- [12] *Monodromy of the Casimir connection of a symmetrisable Kac–Moody algebra* (with V. Toledano Laredo). **Inventiones Mathematicae** 236 (2024), 124pp.
[DOI] [arXiv]
- [11] *Pure braid group actions on category $\mathcal{O}$ modules* (with V. Toledano Laredo). **Pure and Applied Mathematics Quarterly** 20.1 (2024), 51 pp.
[DOI] [arXiv] - Special Issue dedicated to Corrado De Concini.
- [10] *Generalized Schur–Weyl duality for quantum affine symmetric pairs and orientifold KLR algebras* (with T. Przydziewicz). **Advances in Mathematics** 435 (2023), Part B, 109383, 52pp.
[DOI] [arXiv]
- [09] *On a conjecture of Khoroshkin and Tolstoj* (with S. Gautam and C. Wendlandt). **International Mathematics Research Notices - IMRN**, 2023 (2023) no.24, 17pp.
[DOI] [arXiv]
- [08] *Universal K -matrices for quantum Kac–Moody algebras* (with B. Vlaar). **Representation Theory** 26 (2022), 61pp.
[DOI][arXiv]
- [07] *Continuum Kac–Moody algebras* (with F. Sala and O. Schiffmann). **Moscow Mathematical Journal** 22 (2022) no.2, 48pp.
[DOI] [arXiv]
- [06] *Quantization of continuum Kac–Moody algebras* (with F. Sala). **Pure and Applied Mathematics Quarterly** 16 (2020) no.3, 55pp.
[DOI] [arXiv] - Special Issue dedicated to Kyoji Saito.
- [05] *An explicit isomorphisms between quantum and classical $\mathfrak{sl}_n$* (with S. Gautam). **Transformation Groups** 25 (2020) no.4, 36pp.
[DOI] [arXiv]
- [04] *Coxeter categories and quantum groups* (with V. Toledano Laredo). **Selecta Mathematica (N.S.)** 25 (2019), no.3, 97pp.
[DOI] [arXiv]
- [03] *Uniqueness of Coxeter structures on Kac–Moody algebras* (with V. Toledano Laredo). **Advances in Mathematics** 347 (2019), 104pp.
[DOI] [arXiv]
- [02] *A 2–categorical extension of Etingof–Kazhdan quantisation* (with V. Toledano Laredo). **Selecta Mathematica (N.S.)** 24 (2018), no.4, 89pp.
[DOI] [arXiv]
- [01] *A DG-extension of symmetric functions arising from higher representation theory* (with I. Egilmez, M. Hogancamp, A. Lauda). **Journal of Combinatorial Algebra** 2 (2018), no.2, 45pp.
[DOI] [arXiv]

Proceedings

- *The Interplay of R -matrices and Quantum Groups* (Proceedings of the conference GABY 2024). **Advances in Group Theory and Applications** 20 (2025), pp. 60.
Lecture Notes - [DOI]
- *Generalized Schur–Weyl dualities, quantum affine symmetric pairs, and orientifold Khovanov–Lauda–Rouquier algebras* (with T. Przydziewicz).
Contribution in **Oberwolfach Report: Three Facets of R -matrices**, 17–23 October 2021 - [DOI]

Ph.D. Thesis

Monodromy theorems in the affine setting, Ph.D. Thesis
Northeastern University - [Repository]

Research Grants

- 2024-2026 **PRIN - Progetto di Ricerca di Rilevante Interesse Nazionale, Algebraic Aspects of 2dQFT with reflection symmetry**, PRIN ID: 2022HMBTTL - CUP: D53C24003390001
Role: co-Principal Investigator and Local Coordinator of the Research Unit at the University of Parma.
Scope: Research Funds. Amount: €125.162,00. Website: [UNIPR], [SAPIENZA]
- 2024-2026 **Progetto di Ricerca INdAM 2024 - Linea 2 Consolidator Grants, Bispectrality and Boundary Phenomena in Quantum Groups**, CUP: E53C23001740001
Role: Principal investigator. Scope: Research Funds. Amount: €30.000,00.
- 2024-2025 **Progetto d'Ateneo Università di Parma, Bispectrality and Boundary Phenomena in Quantum Groups**, Bando di Ateneo per la Ricerca 2024 Linea D.
Role: Principal investigator. Scope: Research Funds. Amount: €23.891,00.
- 2023-2024 **Progetto d'Ateneo Università di Parma, Quantum groups at root of unity and integrable systems with boundary**, Bando di Ateneo per la Ricerca 2022 Linea B (Young Researchers)
Role: Principal investigator. Scope: Research Funds. Amount: €8.500,00.
- 2021-2022 **Progetto d'Ateneo Università di Parma, Reflection Symmetries arising from quantum loop algebras**, Bando di Ateneo per la Ricerca 2020 Linea B (Young Researchers)
Role: Principal investigator. Scope: Research Funds. Amount: €8.500,00.
- 2020 **Programma per giovani ricercatori Rita Levi Montalcini 2018 (D.M. 511 - 24/8/2020)**
Role: Principal investigator. Scope: Salary and Research Funds. Amount: €180,481.44 + €43,000.
Notes: grant declined. [Link]
- 2015-2017 **AMS-Simons Travel Grant, AMS-Simons Foundation**
Role: Principal Investigator. Scope: Research Funds. Amount: \$4,000

Research Training

- 2026 **Postdoc Supervision, Dr. Simone Castellan, University of Parma**
1-Year Postdoctoral Fellowship funded by PRIN Grant 2022HMBTTL
- 2025 **Postdoc Supervision, Dr. Alessandro Carotenuto, University of Parma**
1-Year Postdoctoral Fellowship funded by University of Parma
- 2019-2020 **IAD Action Grant, Institute for Academic Development, University of Edinburgh**
Role: Coordinator. Scope: Academic projects aimed at PhD students and Postdocs. Amount: £6,500

Fellowships

- 2013 **Dissertation Completion Fellowship**, Northeastern University
01/01/2013–30/04/2013. Scope: Semester salary (4 months, research only). Amount: approx. \$18,000
- 2011 **Ling-Ma Fellowship**, Northeastern University
01/06/2011–31/07/2011. Scope: Summer Salary (research only). Amount: approx. \$5,000
- 2008 **University Excellence Fellowship**, Northeastern University
2008–2013. Scope: Additional research funds. Amount: \$25,000

Selected Visiting positions

- 2026 **Erwin Schrödinger International Institute for Mathematics and Physics, ESI, Vienna, Austria**
Research in Groups with J. Li, T. Przèdziecki, and B. Vlaar - 2 weeks
- 2025 **Erwin Schrödinger International Institute for Mathematics and Physics, ESI, Vienna, Austria**
Research in Groups with J. Li, T. Przèdziecki, and B. Vlaar - 2 weeks
- 2025 **International Centre for Mathematical Sciences, Edinburgh, UK**
Research in Groups with J. Li, T. Przèdziecki, and B. Vlaar - 2 weeks
- 2024 **Beijing Institute for Mathematical Sciences and Applications, Beijing, China**
Research visit - 2 weeks
- 2023 **Centro Internazionale per la Ricerca Matematica, Trento, Italy**
Research in Pairs with S. Gautam and C. Wendlandt - 3 weeks
- 2021 **Mathematisches Forschungsinstitut Oberwolfach, Germany**
Research in Pairs with S. Gautam and C. Wendlandt - 2 weeks

- 2019 **Aspen Center for Physics**, Colorado, USA
Summer Program - 3 weeks
- 2017 **Institut des Hautes Études Scientifiques IHES**, France
Research visit - 1 month
- 2015 **IAS Park City Mathematical Institute**, Utah, USA
Summer Program - 3 weeks
- 2014 **Institut des Hautes Études Scientifiques IHES**, Paris, France
Research visit - 1 month
- 2014 **Hebrew University**, Jerusalem, Israel
Research visit - 1 months
- 2012 **Columbia University**, NY, USA
Research visit - 4 months
- 2012 **Forschungsinstitut für Mathematik, ETH**, Zurich, Switzerland
Research program - 1 month

Conference Talks

- 2026 **Exact Techniques and their applications**, *Tropea, Italy*
August 27 – September 2, 2026 [Link]
- 2026 **Physical Mathematics 2026**, *Seoul National University, South Korea*
June 15–19, 2026 [Link]
- 2026 **Q-SPHERE 2026**, *Radboud University, Netherlands*
June 8–12, 2026 [Link]
- 2026 **XI International Workshop on Non-associative Algebras**, *Università di Bari, Italy*
April 13–17, 2026 [Link]
- 2025 **New Perspectives in Quantum Representation Theory**, *ICMS, Edinburgh, UK*
November 17–21, 2025. [Link]
- 2025 **The RepNet Launch Party**, *University of York, UK*
July 29–30, 2025 [Link]
- 2025 **All around Integrability**, *University of Modena and Reggio Emilia, Italy*
June 3–4–5, 2025. [Link]
- 2025 **Solving the Yang–Baxter Equation. New Frontiers and Approaches**, *Levico Terme, Italy*
May 4–8, 2025. [Link]
- 2024 **Hopf algebras and Monoidal Categories**, *Università di Ferrara, Italy*
September 3–6, 2024. [Link]
- 2024 **RTISART-2024: Representation Theory, Integrable Systems and Related Topics**, *BIMSA, China*
July 8–12, 2024. [Link]
- 2024 **Perspectives in Representation Theory - 9ECM Satellite Conference**, *Coimbra, Portugal*
July 1–3, 2023. [Link]
- 2024 **Higher structures 2024**, *Caprarola, Italy*
February 29 - March 2, 2024. [Link]
- 2023 **Taipei Conference in Representation Theory VII**, *Taipei, Taiwan*
December 18–22, 2023. [Link]
- 2023 **VI International Workshop on Non-associative Algebras**, *Universidad Politécnica de Madrid, Spain*.
June 19–23, 2023. [Link]
- 2023 **Higher structures 2023**, *Caprarola, Italy*
February 15–17, 2023. [Link]
- 2022 **New trends in Hopf algebras and Monoidal Categories**, *Università di Torino, Italia*.
September 6–9, 2022. [Link]
- 2021 **Three facets of R-matrices**, *Mathematisches Forschungsinstitut Oberwolfach, Germany*
October 17–22, 2021 - [Link]

- 2020 **Tensor Categories, Quantum groups, and Related Topics**, *Nottingham, UK*
June 29 - July 1, 2020 - [\[Link\]](#)
- 2019 **Lie Theory Session, XXI Congress of the Italian Mathematical Union**, *Pavia, Italy*
September 2019 - [Link](#)
- 2019 **Moduli Spaces, Representation Theory and Quantization**, *RIMS, Kyoto University*
June 2019 - [\[Link\]](#)
- 2019 **Geometry and Mathematical Physics Workshop**, *Loughborough University*
March 2019 - [\[Link\]](#)
- 2019 **Representation theory, gauge theory and integrable systems**, *Kavli IPMU, Tokyo*
February 2019 - [\[Link\]](#)
- 2019 **Aspects of Higher Representation Theory**, *Brussels, Belgium*
January 2019 - [\[Link\]](#)
- 2017 **Conference on Geometric Representation Theory**, *University of Glasgow*
July 2017 - [\[Link\]](#)
- 2015 **US–Mexico Conference in Representation Theory and Noncommutative algebra**, *UNAM, Mexico City*
January 2015 - [\[Link\]](#)
- 2014 **Algebraic Geometry and Representation Theory in Rome**, *Università Roma Tre, Italy*
December 2014
- 2014 **Second Joint International Meeting IMU–AMS, Special Session on Mirror Symmetry and Representation Theory**, *Tel Aviv University, Israel*
June 2014 - [\[Link\]](#)
- 2014 **Quantum groups, Deformation and Geometry - A Conference in memory of J. Donin**, *Bar-Ilan University, Israel*
June 2014 - [\[Link\]](#)
- 2013 **Meeting of the AMS, Special Session on Categorification in Representation Theory**, *University of California Riverside*
November 2013 - [\[Link\]](#)

Lecture Series

- 2026 **Quantum Groups Days**, *Université de Lille, France*
April 2–3, 2026 [\[Link\]](#)
- 2024 **GABY: Groups & Algebras in Bicocca for Young algebraists**, *Università di Milano Bicocca, Italy*
June 17–21, 2024. [\[Link\]](#)

Organization of Conferences and Workshops

- 2024 **New Perspectives in Yangians and Quantum Affine Algebras**, *Parma, Italy*, October 1–3, 2024.
Organizers: A. Appel, C. Meneghelli. [\[Link\]](#)
- 2024 **Quantization in Representation Theory, Derived Algebraic Geometry, and Gauge Theory**, *SwissMAP Research Station at Les Diablerets, Switzerland*, September 16–20, 2024.
Organizers: A. Appel, L. Bossinger, G. Felder, M. Porta, F. Sala, O. Schiffmann. [\[Link\]](#)
- 2021 **Quantization in Derived Algebraic Geometry and Representation Theory**, *Casa Matemática Oaxaca, Mexico*, May 2–7, 2021
Organizers: A. Appel, M. Porta, F. Sala, O. Schiffmann. Cancelled due to Covid Emergency. [\[Link\]](#).
- 2019 **Quantum groups and integrable systems - 56th ARTIN Meeting**, *University of Edinburgh*, Nov. 28–29, 2019
Organizers: A. Appel, D. Valeri.
- 2016 **US–Mexico Conference in Representation Theory, Categorification, and Noncommutative algebra**, *University of Southern California, Los Angeles*, May 30 - June 3, 2016
<http://www-bcf.usc.edu/~lauda/US-MEX-2016/conference2016.html>
Organizers: A. Appel, A. Lauda, C. Geiss, M. Yakimov

- 2014 **Workshop on Categorification and Representation Theory**, *University of Southern California, Los Angeles*, October 30-31, 2014
Organizers: A. Appel, A. Lauda, D. Rose

Young Researchers Meetings in Algebra and Geometry

- since 2025 **YRMAG Steering Committee**, Member
- 2025 **Young Researchers Meeting in Algebra and Geometry in Modena**, September 10-12, 2025
Funded by INdAM-GNSAGA, Università di Modena e Reggio Emilia. [Link]
Organizers: A. Appel, L. Capuano, F. Carocci, C. Felisetti, F. Sala, R. Svaldi, M. Talpo
- 2024 **Young Researchers Meeting in Algebra and Geometry in Milano**, September 23-25, 2024
Funded by INdAM-GNSAGA, Università di Milano. [Link]
Organizers: A. Appel, F. Binda, L. Pertusi, F. Sala, R. Svaldi, M. Talpo
- 2023 **Young Researchers Meeting in Algebra and Geometry in Roma**, September 20-22, 2023
Funded by INdAM-GNSAGA, Università di Roma Tre. [Link]
Organizers: A. Appel, F. Binda, L. Capuano, F. Sala, M. Talpo
- 2022 **Young Researchers Meeting in Algebra and Geometry in Trieste**, September 28-30, 2022
Funded by INdAM-GNSAGA, SISSA, Università di Pisa. [Link]
Organizers: A. Appel, A. Lerario, F. Sala, S. Scherotzke, N. Sibilla, M. Talpo
- 2021 **Young Researchers Meeting in Algebra and Geometry in Pisa**, September 30 - October 1, 2021
Funded by INdAM-GNSAGA, Università di Pisa, Scuola Normale Superiore di Pisa, Politecnico di Milano.
Organizers: A. Appel, A. Hochenegger, M. Porta, F. Sala, S. Scherotzke, M. Talpo

Teaching - Graduate Courses - PhD Level

Topics in Representation Theory

Since 2022, I offer **every year** a 24h advanced course in Representation Theory. This is part of the joint Ph.D. Program of the Universities of Parma, Modena/Reggio Emilia, and Ferrara. The course is typically held online, and the participation is open to graduate students from other universities.

- 2021 **Yangians in geometry and representation theory**
Joint course with University of Pisa and University of Rome Tor Vergata.
- 2016 **Infinite-dimensional Lie groups**
University of Southern California Los Angeles
- 2015 **Quantum groups and differential equations**
University of Southern California Los Angeles

Academic duties and responsibilities

- since 2026 **Presidente Vicario (Undergraduate Deputy Coordinator)**, *Corso di Studi Unificato in Matematica*
Department of Mathematics, Physics, and Computer Science - University of Parma
- since 2025 **Responsabile dell'Assicurazione della Qualità**, *Corso di Laurea in Matematica*
Department of Mathematics, Physics, and Computer Science - University of Parma
- since 2023 **Commissione Mobilità Internazionale**, *International Mobility Committee*
Department of Mathematics, Physics, and Computer Science - University of Parma
- since 2023 **Redazione Web**, *Web Editorial Board*
Department of Mathematics, Physics, and Computer Science - University of Parma
- since 2021 **Comitato di Area 01**, *Scientific Committee - Mathematics and Computer Science*
Department of Mathematics, Physics, and Computer Science - University of Parma

Languages

Italian, English, French

Research Profiles

ORCID 0000-0002-6446-9305
Scopus 57200223562
G Scholar yp-THkMAAAAJ