

# CURRICULUM VITÆ

## PERSONAL INFORMATION **Luca Motto Ros**

 University of Turin — Department of Mathematics “G. Peano”

## WORK EXPERIENCE

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- Sep 2017– Present **Associate professor**  
University of Turin, Department of Mathematics
- Sep 2014 – Sep 2017 **Tenure-track researcher (Ricercatore TD-B)**  
University of Turin, Department of Mathematics
- Oct 2010 – Sep 2014 **Assistant professor**  
University of Freiburg (Germany), Department of Logic
- Oct 2007 – Sep 2010 **Post-doc**  
Kurt Gödel Research Center for Mathematical Logic, University of Vienna (Austria)
- Jan 2004 – Dec 2006 **Ph.D. student in Mathematics (for the Engineering Sciences)**  
Polytechnic of Turin (Italy), I Facoltà di Ingegneria

## EDUCATION AND QUALIFICATIONS

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- Habilitation **Italian national scientific qualification (full professor)**  
2017 Sector 01/A1 – Mathematical logic, mathematics education and history of mathematics
- Habilitation **German Habilitation and Venia Legendi (Fach Mathematik)**  
2014 Awarded by Albert-Ludwigs-Universität Freiburg
- Habilitation **Italian national scientific qualification (associate professor)**  
2014 Sector 01/A1 – Mathematical logic, mathematics education and history of mathematics
- Ph.D. degree **Ph.D. degree in Mathematics (for the Engineering Sciences)**  
2007 Awarded by Polytechnic of Turin, supervisors: A. Andretta and R. Camerlo

Degree **Degree in Mathematics**  
2003 Awarded by University of Turin, supervisor: A. Andretta

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**AWARDS AND HONOURS**

- 2021 **Logic Colloquim 2021: Invited plenary speaker**
- 2017 **Paolo Gentilini prize 2017**  
awarded by AILA (Associazione Italiana di Logica e sue Applicazioni) to “an outstanding young researcher in the field of logic”
- 2015 **XX Congresso dell’UMI: Invited plenary speaker** (short talks)
- 2012 **Career reintegration research grant “Rita Levi Montalcini”**  
awarded by the Italian Ministry of Education, University and Research (MIUR)
- 2007 **Special mention**  
for the AILA prize for Ph.D. theses in logic
- 2003 **Medal for the best degree-thesis in mathematics**  
awarded by the University of Turin

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**SCHOLARSHIPS, FELLOWSHIPS,  
AND RESEARCH FUNDINGS**

- 2017 **PRIN project** (PI of the unit of Turin)  
funded by the Italian Ministry of Education, University and Research (MIUR).  
Total co-funding: € 535.895,00; allocated to the unit of Turin: € 148.228,00
- 2015 **Visiting fellowship** of the Isaac Newton Institute for Mathematical Sciences (Cambridge)  
Programme *Mathematical, Foundational and Computational Aspects of the Higher Infinite* (organizers: Professor J. Bagaria, Professor M. Dzamonja and Professor B. Löwe)
- 2012 **Career reintegration research grant “Rita Levi Montalcini”** (3 years)  
awarded by the Italian Ministry of Education, University and Research (MIUR).  
Total funding: € 189.373,00
- 2007 **Post-Doc Scholarship** (3 years)  
awarded by the Kurt Gödel Research Center (*Chair*: S. D. Friedman) on behalf of the FWF Wissenschaftsfonds - Austrian Science Fund
- 2004 **Ph.D. Scholarship** (3 years)  
awarded by the Polytechnic of Turin

## RESEARCH PROJECTS

**Principal Investigator/Coordinator of a local unit** of the following projects:

PRIN 2017 **Mathematical Logic: models, sets, computability**

Progetto di Ricerca di Interesse Nazionale (Project Number 2017NWTM8R), funded by Italian Ministry of Education, University and Research (MIUR), role: PI of the local unit of Turin

*Total co-funding: € 535.895,00; allocated to the unit of Turin: € 148.228,00*

Career Reintegration Research Grant **New advances in Descriptive Set Theory**

Programma Giovani Ricercatori “Rita Levi Montalcini” 2012, funded by the Italian Ministry of Education, University and Research (MIUR), role: PI

*Total funding: € 189.373,00*

Local Research Projects **Progetti di Ricerca finanziati dall’Università di Torino (ex 60%)**

funded by the University of Turin, role: Coordinator of the logic group from 2014 to 2021

*Total funding: € 43.824,00*

Additionally, I was a **member of the research team** in the following projects:

2007–2010 **Austrian research project**: “*Inner and Outer models, Projective Sets*” (Project Nr. P 19898-N18), funded by FWF (Austria)

2009 **Exchange grant Austria-Russia**: “*Finitary and Infinitary Logic — FWF-RFBR Joint Seminar*” (Project Nr. AJS 328-N18), funded by FWF (Austria)

2009–2010 **Exchange grant Vienna-Prague**: “*Set Theory and its Applications*” (Project Nr. CZ 04/2009), funded by OeAD-GmbH ICM (Austria) and Czech Ministry of Education, Youth and Sports (Czech Republic)

2009–2010 **Exchange grant Vienna-Wrocław**: “*Forcing, Descriptive Set Theory and Equivalence Relations*” (Project Nr. PL 01/2009), funded by OeAD-GmbH ICM (Austria) and Polish Ministry of Science and Higher Education (Poland)

2011–2013 **PRIN2009** (Progetto di Ricerca di Interesse Nazionale): “*Models and sets*” (Project Nr. 2009WY32E8), funded by Italian Ministry of Education, University and Research (Italy)

## SELECTED PAPERS

**24 papers** published or accepted for publication since 2009, including the following ones:

202X *Souslin quasi-orders and bi-embeddability of uncountable structures*, accepted for publication on the **Memoirs of the American Mathematical Society**, joint work with A. Andretta.

2021 *A descriptive Main Gap Theorem*, **Journal of Mathematical Logic**, joint work with F. Mangravit.

2020 *Uncountable structures are not classifiable up to bi-embeddability*, **Journal of Mathematical Logic**, joint work with H. Mildenberger and F. Calderoni

2018 *On isometry and isometric embeddability between ultrametric Polish spaces*, **Advances in Mathematics**, joint work with R. Camerlo and A. Marcone

2018 *Universality of group embeddability*, **Proceedings of the American Mathematical Society**, joint work with F. Calderoni

- 2016 *The Hurewicz dichotomy for generalized Baire spaces*, **Israel Journal of Mathematics**, joint work with P. Lücke and P. Schlicht
- 2013 *On the structure of finite level and  $\omega$ -decomposable Borel functions*, **Journal of Symbolic Logic**
- 2013 *The descriptive set-theoretical complexity of the embeddability relation on models of large size*, **Annals of Pure and Applied Logic**
- 2013 *Invariantly universal analytic quasi-orders*, **Transactions of the American Mathematical Society**, joint work with R. Camerlo and A. Marcone
- 2012 *On the complexity of the relations of isomorphism and bi-embeddability*, **Proceedings of the American Mathematical Society**
- 2011 *Analytic equivalence relations and bi-embeddability*, **Journal of Symbolic Logic**, joint work with S. D. Friedman

## SELECTED TALKS AND CONFERENCES

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Since 2007 I gave **more than 60** research talks, in most cases as **invited speaker** in international conferences (34 talks) or logic seminars at other universities (17 talks) such as:

- 2021 Logic Colloquium 2021, *Poznań* (Poland)
- 2021 Caltech Logic Seminar, *Caltech* (US)
- 2020 Fifth Workshop on Generalised Baire Spaces, *Bristol* (UK)
- 2019 15th International Workshop in Set Theory, *CIRM Luminy* (France)
- 2018 Set theory today: A conference in honor of Georg Cantor, *KGRC Vienna* (Austria)  
 KNAW Academy Colloquium “Generalised Baire Spaces”, *Amsterdam* (The Netherlands)  
 Descriptive set theory conference, *Bernoulli center (EPFL)*, Lausanne (Switzerland)
- 2017 14th International Workshop in Set Theory, *CIRM Luminy* (France)  
 XXVI incontro dell’AILA, *Padua* (Italy)
- 2016 Bonn Set Theory Workshop 2016, *HIM Bonn* (Germany)
- 2015 XX Congresso dell’Unione Matematica Italiana, *Siena* (Italy)
- 2014 INFTY Final Conference, *HIM Bonn* (Germany)  
 Set Theory Workshop, *Mathematisches Forschungsinstitut Oberwolfach* (Germany)
- 2013 6th Young Set Theory Workshop, *Oropa* (Italy)
- 2011 Logic Colloquium 2011 (special session: Set Theory), *Barcelona* (Spain)  
 RaTLCC 2011 — Ramsey Theory in Logic, Combinatorics and Complexity, *Bertinoro* (Italy)
- 2009 ESI Workshop on Large Cardinals and Descriptive Set Theory, *ESI Vienna* (Austria)
- 2008 Descriptive Set Theory in Paris, Institute of Mathematics of Jussieu, *Paris VI* (France)
- 2007 Set Theory Meeting in Amsterdam, *ILLC Amsterdam* (Holland)  
 Set Theory and its neighbours—Analysis and Set Theory II, *University College of London* (UK)

## CONFERENCES ORGANIZATION

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- Organizer**
- *8th European Set Theory Conference*, University of Turin, Italy, 29.8.2022–2.9.2022
  - *Descriptive Set Theory Day in Torino*, University of Turin, Italy, 12.6.2018
  - *Workshop on Wadge Theory and Automata II*, University of Turin, Italy, 8.6.2018
  - *IIIM 2018 — Incontro Italiano Insieme e Modelli 2018*, University of Turin, Italy, 21–23.2.2018
  - *Descriptive Set Theory in Turin*, University of Turin, Italy, 6–8.9.2017
  - *P.O.I Workshop in Pure and Descriptive Set Theory*, University of Turin, Italy, 25–26.9.2015
  - *Workshop on Wadge theory and automata*, University of Turin, Italy, 28.1.2015
  - *Set Theory Workshop in Freiburg*, University of Freiburg, Germany, 10–13.6.2014

- Program Committee**
- *8th Young Set Theory Workshop*, Israel Institute of Advanced Studies, Jerusalem, Israel, 25–30.10.2015

- Local Organizing Committee**
- *Meeting on Set Theory and Analysis*, University of Turin, Italy, 10–12.7.2006
  - *Szyzyg 2005 — an international Italian Conference in Commutative Algebra and Algebraic Geometry*, Polytechnic of Turin, Italy, 18–20.2.2005

## OTHER SCIENTIFIC ACTIVITIES

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- Ph.D. students:** I was the supervisor of Filippo Calderoni and Filippo Cavallari (co-supervisor: J. Duparc). Calderoni's thesis was awarded the **Montagna Prize 2019** by AILA-UMI. Cavallari's thesis was awarded the **Paul Bernays Award 2018** by the Swiss society SSLPS.

- Referee for:** Transactions of the American Mathematical Society, Bulletin of the London Mathematical Society, Journal of Symbolic Logic, Fundamenta Mathematicae, Mathematical Logic Quarterly, Topology and its Applications, Logical Methods in Computer Science, Real Analysis Exchange, Thai Journal of Mathematics, Mathematical Structures in Computer Science, STACS 2010, ICLA 2009, CiE 2008

- Reviewer for:** Mathematical Reviews (MathSciNet), Zentralblatt, Österreichische Mathematische Gesellschaft

## STUDENTS

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Supervisor of **5 Ph.D.** students, **9 master** thesis, and **5 bachelor** thesis.

### Ph.D. degree

- Current:** V. Bard (recursion theory), C. Agostini (generalized descriptive set theory), S. Scamperti (descriptive set theory)
- Former:**
- F. Calderoni, *A descriptive view of the bi-embeddability relation*, 2018
  - F. Cavallari, *Regular tree languages in the first two levels of the Borel hierarchy* (co-supervisor: prof. Jacques Duparc, Lausanne), 2018
- Prizes:** Calderoni's thesis was awarded the **Montagna Prize 2019** by the AILA (Associazione Italiana di Logica e sue Applicazioni) and UMI (Unione Matematica Italiana) "for the best doctoral thesis in mathematical logic and its applications that has been defended in the period 2016–2018".

Cavallari's thesis was awarded the **Paul Bernays Award 2018** by the Swiss Society for Logic and Philosophy of Science (SSLPS) as an "outstanding contribution in the area of logic and philosophy of science".

Additionally, I served as **referee** and/or **jury member** for the **Ph.D. defences** of Dr. F. Guichardaz (Albert-Ludwigs-Universität Freiburg, Germany, 2019), Dr. G. Gullà (University of Roma–Tor Vergata, Italy, 2019), and Dr. A. Hallböck (Université de Paris 7, France).

## Master degree

Current: M. Barbero, D. Manca

- Former:
- F. Damiani, *Sull'esistenza di insiemi proiettivi non misurabili* (co-supervisor: prof. C. Bernardi, Rome), University of Rome "La Sapienza", 2016/17
  - F. Mangraviti, *The isomorphism relation of classifiable theories*, University of Turin, 2016/17
  - M. Ratti, *Borel reducibility and the isomorphism problem for separable  $C^*$ -algebras*, University of Turin, 2016/17
  - R. Treglia, *From natural deduction to  $\lambda\mu$ -calculus, and two abstract machines* (co-supervisor: B. Accattoli, INRIA, Paris), University of Turin, 2016/17
  - M. Iannella, *On the classification of wild proper arcs and knots*, University of Turin, 2017/18
  - S. Scamperti, *Graph homomorphism: decidability and complexity*, University of Turin, 2018/19
  - B. Pitton, *Borel and Borel\* sets in generalized descriptive set theory*, University of Turin, 2020/21

Prizes: Mangraviti's thesis was awarded the **Premio AILA 3+2 2018** by the Associazione Italiana di Logica e sue Applicazioni (AILA) for the best italian master thesis in logic.

Scamperti's thesis was awarded the **Premio AILA 3+2 2021** by the Associazione Italiana di Logica e sue Applicazioni (AILA) for the best italian master thesis in logic.

## Bachelor degree

- Former:
- M. Lösch, *Determinacy of Borel-Games*, Albert-Ludwigs-Universität Freiburg, 2013/14
  - J. Piribauer, *The Wadge hierarchy and the Steel-Van Wesep theorem*, Albert-Ludwigs-Universität Freiburg, 2013/14
  - M. Ratti, *La proprietà dell'insieme perfetto per gli insiemi analitici*, University of Turin, 2014/15
  - M. Barbero, *Equivalence among some classes of finite state automata on infinite words*, University of Turin, 2017/18
  - D. Leso, *Logica della dimostrabilità*, University of Turin, 2019/20

## ADDITIONAL INFORMATION

Since 2015 I am serving as a member of the **Research Committee** of the Mathematics Department of the University of Turin.

Since 2020 I am a member of the **scientific board of the Ph.D. in Pure and Applied Mathematics**, jointly managed by a Consortium among the University of Turin, the Polytechnic of Turin, and the Istituto Nazionale di Alta Matematica "F. Severi" (INdAM), Rome.

I regularly **review applications for research projects** funded by the FWF Wissenschaftsfonds - Austrian Science Fund in the field of mathematical logic.

I have been a member of various **hiring committees** for post-doc and Ph.D. positions in Italy.

I am currently a member of the following mathematical organizations:

ASL (*Association for Symbolic Logic*), ESTS (*European Set Theory Society*),  
 AILA (*Associazione Italiana di Logica e sue Applicazioni*), UMI (*Unione Matematica Italiana*),  
 INdAM (*Istituto Nazionale di Alta Matematica*, gruppo GNSAGA).