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Ilaria Castellano

CURRICULUM VITAE

INFORMAZIONI PERSONALI

COGNOME	CASTELLANO
NOME	ILARIA
DATA DI NASCITA	[14, Gennaio, 1988]

Data

13 Marzo 2021

Luogo

Milano, IT

Positions:

Jun 2018 – Today Research fellow, University of Milan-Bicocca, IT. (current position)

Dec 2018 – May 2019 Research fellow, University of Udine, IT.

Oct 2016 – Oct 2018 Research fellow, University of Southampton, UK.

Sep 2015 – Sep 2016 Research fellow, University of Udine, IT.

Research interests:

My research area is located in group theory and it is currently focused on totally disconnected locally compact (= TDLC) groups and their cohomology theory. Interest in TDLC-groups is right now very high because of the rapid progress being made with the general theory. Over the past years, I made contributions concerning the geometry and cohomology of TDLC-groups by means of several invariants such as finiteness conditions, number of ends, hyperbolicity and Euler characteristic.

My research also involves the dynamics of topological groups and the notion of entropy in topology and algebra. For instance, I contributed to the theory of entropy for locally linearly compact vector spaces and, more recently, I introduced a notion of entropy for quasi-metric semilattices that produces a scheme covering all those entropy functions that are known to be "intrinsic", i.e., their value depends only on the dynamics of a specific subclass of elements.

My expertise lies mainly in cohomology of algebraic structures but I am also familiar with many tools from geometric group theory, algebraic topology, representation theory and dynamical systems.

THE LIST OF PUBLICATIONS MAY BE FOUND AT THE END OF THIS DOCUMENT.

Education:

2012 – 2015

Ph.D. in Mathematics at University of Bari (IT) under the supervision of Prof. Th. Weigel, University of Milan-Bicocca.

Thesis: Stallings' decomposition theorem for totally disconnected locally compact groups.

The Ph.D. degree has been conferred on May 21st, 2015.

2009 – 2011

MSc in Mathematics in Theoretical Mathematics, Summa Cum Laude, University of Bari, IT.

Thesis: Groebner basis of endomorphisms-invariant ideals: non-commutative and difference polynomials.

Advisor: Prof. Roberto La Scala, University of Bari.

2006 – 2009

BSc in Mathematics, Summa Cum Laude, University of Bari, IT.

Thesis: An introduction to commutative and non-commutative Groebner basis.

Advisor: Prof. Roberto La Scala, University of Bari.

Language skills:

- Italian: mother tongue.
- English: fluent.

Grants & Fellowships:

2020/21 LMS “Visits to UK” grant, \$1340

<https://www.lms.ac.uk/grants/visits-uk-scheme-2>

Joint with Anitha Thillaisundaram, University of Lincoln.

Hosting Universities: Lincoln-Southampton-Royal Holloway, UK.

2020/21 “Research in Pairs” grant by ICTP - INdAM, €1300

<https://tinyurl.com/y277e68o>

Joint with Pavel Zaleskii, University of Brasilia.

Hosting Universities: Brasilia and Milano-Bicocca.

2019 Financial support for conference organization by INdAM, €2000

Conference: GABY 2020 (postponed to 2022).

Hosting University: Milano-Bicocca.

2019/21 Research fellow at the University of Milan-Bicocca, IT.

2019 Financial support for conference participation by INdAM, €350

2018/19 Research fellow at the University of Udine, IT.

2016/18 Research fellow at the University of Southampton, UK.

2015/16 Research fellow at the University of Udine, IT.

2015 Financial support for workshop organization by INdAM, €1000

Conference: Xmaths Workshop 2015.

Hosting University: Bari, IT.

2014 Financial support for workshop organization by INdAM, €500

Conference: Xmaths Workshop 2014.

Hosting University: Bari, IT.

2013 Financial support for research visit at University of Milan-Bicocca (IT) by INdAM, €1000

2013 Financial support for research visit at University of Newcastle (AU) by INdAM, €1900

2012/15 Several grants for traveling during the Ph.D, €1200

2012/15 Fellowship for Ph.D. in Mathematics by Regione Puglia.

Organizational Expertise

Scientific meetings:

Jun 2022 Groups & Algebras in Bicocca for Young Algebraists, University of Milan-Bicocca, IT.

Webpage: <http://staff.matapp.unimib.it/~gaby/>

Jul 2020 Groups with Geometrical and Topological Flavours, online conference.
 Webpage: <https://sites.google.com/view/gwgtf2020>

Jul 2018 Dynamical Methods in Algebra, Geometry and Topology, University of Udine, IT.
 Webpage: <https://dagt.uniud.it>

Jul 2017 Homological algebra and Topological groups, University of Southampton, UK.
 Webpage: <https://sites.google.com/site/haatg2017/>

Dec 2015 Xmaths Workshop 2015, University of Bari, IT.
 Webpage: <http://www.xmathsworkshop.weebly.com>

Dec 2014 Xmaths Workshop 2014, University of Bari, IT.
 Webpage: <http://www.xmathsworkshop.weebly.com>

Dec 2013 Xmaths Workshop 2013, University of Bari, IT.
 Webpage: <http://www.xmathsworkshop.weebly.com>

Dec 2012 Xmaths Workshop 2012, University of Bari, IT.
 Webpage: <http://www.xmathsworkshop.weebly.com>

Series of Seminars:

2019/Today “Al@Bicocca seminars”, University of Milan-Bicocca, IT.
 Webpage: <https://sites.google.com/unimib.it/algebra-in-bicocca-english/algebra-seminar>

2017/18 “Lunchtime seminars”, University of Southampton, UK.
 Webpage: www.southampton.ac.uk/math/research/seminars/pure/lunchtime_seminars.page

Memberships:

- GNSAGA, INdAM - Istituto Nazionale di Alta Matematica, IT.
 Webpage: umi.dm.unibo.it
- FCG - Functor Categories for Groups, UK.
 Webpage: <https://www.lancaster.ac.uk/math/fcg/>

Advising:

2016 Co-Supervisor of master thesis, University of Udine, IT.
 Student: Luisa GALLOVICH
 Thesis: Dualità ed Entropia per spazi vettoriali localmente linearmente compatti.

Review Activities:

- Reviewer for Zentralblatt Math.
- Reviewer for Mathematical Reviews of AMS.
- Reviewer for the journal Topological Algebra and its applications.
- Reviewer for the journal Analysis and Mathematical Physics.

Research Projects:

2016/18 Supported by Soluble Groups and Cohomology - EPSRC Grant N007328/1.
2015/16 Supported by Project GADYGR - SIR 2014, MIUR - Number RBSI14V2LI cup G22I15000160008.

Communications

Invited Talks:

- Apr 2021** FCG meeting, University of Lincoln, UK.
<https://www.lancaster.ac.uk/mathsfcg/>
- Sep 2020** New Trends Around Profinite Groups, CIRM, IT. (postponed)
<http://reh.math.uni-duesseldorf.de/~internet/Levico2020/>
- Sep 2020** LMS Autumn Algebra School, International Center for Mathematical Sciences, UK.
<https://www.icms.org.uk/events/event/?id=1073>
- Sep 2019** YARC 2019, University of Naples “Federico II”, IT.
<http://www.advgrouptheory.com/yrac2019/program.html>
- Apr 2019** FCG, University of Lancaster, UK.
<https://www.lancaster.ac.uk/mathsfcg/april-2019/>
- Feb 2019** Seminar at the University of Milan-Bicocca, IT.
- Dec 2018** Seminar at the University of Milan-Bicocca, IT.
- Sep 2018** Seminar at the University of Udine, IT.
- Apr 2018** Pure colloquium, University of Southampton, UK.
<https://www.maths.soton.ac.uk/pure-colloq/>
- May 2017** Seminar at the University of Milan-Bicocca, IT.
- Mar 2017** Seminar at the University of Copenhagen, DK.
- Feb 2017** Seminar at the Royal–Holloway University of London, UK.
- Dec 2016** Seminar at the University of Udine, IT.
- Dec 2016** GGE 2016, University of Southampton, UK.
- Nov 2015** GTG-Groups and Topological groups 2015, Salerno, IT.
<http://www.advgrouptheory.com/yrac2019/program.html>
- Oct 2013** Pure colloquium, University of Newcastle, AU.

Contributed Talks:

- Oct 2019** GTG 2019, Cetara, IT.
- Sep 2019** Of coarse! Quasi-isometries and groups: rigidity and classification, Ventotene, IT.
- Jun 2019** AGTA 2019, Università del Salento, IT.
- July 2018** Groups in Campinas, University of Campinas, BR.
- Nov 2016** Permutation groups, Banff, CA.
- Jul 2016** Toposym 2016, Prague, CZ.
- Jun 2015** AGTA-Advances in Group theory and applications 2015, Porto Cesareo, IT.
- Mar 2015** Spring School on Algebraic K-theory of Topological Algebras, Universität at Regensburg, DE.
- Dec 2013** Xmaths Workshop, University of Bari, IT.
- Nov 2013** Victorian Algebra Conference 2013, University of Melbourne, AU.
- Dec 2012** Xmaths Workshop, University of Bari, IT.

Teaching

Courses and Series of lectures:

- 2021** Ph.D. Course (28 hours and final exams)
Title: Cohomology and Geometry of totally disconnected locally compact groups.
University of Milano-Bicocca and University of Pavia, IT.
<https://sites.google.com/view/jointphd/courses>
- 2020** Ph.D. mini-course (1 week/3 lectures)
Title: An introduction to totally disconnected locally compact groups.

LMS Autumn Algebra School, International Center for Mathematical Sciences, UK.
The lectures are available on the LMS youtube channel:
<https://www.youtube.com/watch?v=FtT4PfigpFk>

2019 Lecture “The Lamplighter Group”.
University of Udine, UK. (Master students)

2017 Ph.D. mini-course (2 weeks/6 lectures)
Title: Rational discrete cohomology for totally disconnected locally compact groups.
University of Southampton, UK.

2016 Ph.D. mini-course (2 weeks/6 lectures)
Title: Rational discrete cohomology for totally disconnected locally compact groups.
École polytechnique, Paris, FR.

Teaching Assistance:

2020/21 Mathematics for Sociology (undergrads), University of Milan-Bicocca, IT.
2020/21 Linear Algebra and Geometry for Mathematics (undergrads), Polytechnic University of Milan, IT.
2019/20 Linear Algebra and Geometry for Mathematics (undergrads), University of Milan-Bicocca, IT.
2019/20 Mathematics for Sociology (undergrads), University of Milan-Bicocca, IT.
2019 Crash Course (2 weeks) Mathematics for Sociology, University of Milan-Bicocca, IT.
2018 Geometry and Topology (undergrads), University of Southampton, UK
2015 Geometry for Mathematics (undergrads), University of Bari, IT.
2013 Calculus for Engineering (undergrads), University of Bari, IT.

Research visits:

Jun 2019 Research meeting with Prof. A. Giordano Bruno at University of Udine, IT.
Feb 2019 Research meeting with Prof. Th. Weigel at University of Milan-Bicocca, IT.
Oct 2018 Research meeting with Prof. Th. Weigel at University of Milan-Bicocca, IT.
Sep 2018 Research meeting with Prof. A. Giordano Bruno at University of Udine, IT.
Feb 2018 Research meeting (2 weeks) with Dr. G. Corob Cook at University of Bilbao, ES.
May 2017 Research meeting with Prof. Th. Weigel at University of Milan-Bicocca, IT.
Mar 2017 Visiting researcher (4 months) at Isaac Newton Institute, Cambridge University, UK.
Jan 2017 Research meeting with Prof. R. Sauer at Karlsruhe Institute of Technology, DE.
Dec 2016 Research meeting with Prof. A. Giordano Bruno at University of Udine, IT.
Mar 2016 Visiting researcher (2 weeks) at École polytechnique – Université Paris-Saclay, FR.
May/Jul 2014 Visiting Ph.D. student University of Milano-Bicocca, IT.
Sep/Dec 2013 Visiting Ph.D. student at University of Newcastle, AU.
Gen/Jul 2013 Visiting Ph.D. student at University of Milano-Bicocca, IT.

Scientific meetings and Schools (participation with no contribution):

Jul 2019 Advanced School on Representations of Pro-p Groups, ICMAT-Autónoma de Madrid, ES.
May 2019 Women in Non-Commutative Algebra and Representation Theory, University of Leeds, UK.
Dec 2019 FCG (Functor Categories for Groups) meeting, Royal Holloway University of London, UK.
Sep 2018 Una giornata per Silvia, Udine, IT.
Jul 2018 Group Theory in Campinas, University of Campinas, BR.
Jul 2018 IMPA-Goup Theory, Cabo Frio, BR.
May 2018 GABY 2018, University of Milano-Bicocca, IT.
Apr 2018 Homological and Topological methods in group theory, University of Bielefeld, DE.

Mar 2018 K60 - Groups and Cohomology (in honor of P. Kropholler's 60th birthday), Southampton, UK.
May 2017 Groups in Galway, NUI Galway, IE.
Dec 2016 GGT 2016, University of Southampton, UK.
Nov 2016 Groups in Madrid, Universidad Autonoma de Madrid, ES.
Jun 2016 Advances in group theory and applications 2016: the school. Vietri sul Mare, IT.
Dec 2015 XMaths Workshop 2015, University of Bari, IT.
Nov 2015 GTG- Groups and Topological Groups 2015, Salerno, IT.
Sep 2015 Manifolds and Groups, Ventotene, IT.
Mar 2015 Spring School on Algebraic K-theory of Topological Algebras, Universität Regensburg, DE.
Dec 2014 XMaths Workshop 2014, University of Bari, IT.
Oct 2014 Arbeitsgemeinschaft Deninger-Faltings: Totally Disconnected Groups, Oberwolfach, DE.
Apr 2014 Ischia group theory 2014, Ischia, IT.
Jun 2014 Bicocca Ph.D. School on Representation Theory 2014, University of Milano-Bicocca, IT.
Sep 2013 Geometric and Analytic Group Theory, Ventotene, IT.
Jun 2013 AGTA-Advances in Group theory and applications 2013, Porto Cesareo, IT.
May 2013 Bicocca-Workshop on Lie algebras, University of Milano-Bicocca, IT.
Apr 2013 Locally compact groups beyond Lie theory, Spa, BE.
Jul/Aug 2012 SMI - school, University of Perugia, IT.

Scientific Publications

In preparation:

- (17) I. Castellano, F.W. Pasini and Th. Weigel. The asymptotic behaviour of compactly generated totally disconnected locally compact groups.
- (16) I. Castellano, N. Mazza and B. Nucinkis. Mackey functors for profinite groups.
- (15) I. Castellano, Rational discrete cohomology of TDLC-completions.

Preprint:

- (14) I. Castellano. Geometry and Cohomology of totally disconnected locally compact groups. Proceedings of the LMS Autumn Algebra School 2020, Springer.
- (13) I. Castellano, A. Giordano Bruno and N. Zava. Quasimetric and order (with an application in dynamical systems).
- (12) I. Castellano, G. Chinello and Th. Weigel, Hattori–Stallings rank, Euler characteristic and χ -function for totally disconnected locally compact groups.

Published:

- (11) S. Arora, I. Castellano, G. Corob Cook and E. Martinez-Pedroza, Subgroups, hyperbolicity and cohomological dimension for totally disconnected locally compact groups. Journal of Topology and Analysis. <https://arxiv.org/abs/1908.07946>
- (10) I. Castellano, D. Dikranjan, D. Freni, A. Giordano Bruno, D. Toller. Intrinsic entropy for generalized quasi-metric semilattices. To appear in Journal of Algebra and its Applications. <https://arxiv.org/abs/2003.00929>
- (9) I. Castellano and P. Zalesskii. Subgroups of pro- p PD_3 -groups. Monatshefte für Mathematik. Published online (2021): doi: 10.1007/s00605-020-01505-5. <https://arxiv.org/abs/2005.00423>

- (8) I. Castellano. The corank of a flow over the category of linearly compact vector spaces. *Journal of Pure and Applied Algebra* 224.6 (2020): 106266.
<https://arxiv.org/abs/1803.04018>
- (7) I. Castellano. Topological entropy for locally linearly compact vector spaces and field extensions. *Topological Algebra and its Applications*, 8(1) (2020): 58-66. doi:10.1515/taa-2020-0005
<https://arxiv.org/abs/1809.02144>
- (6) I. Castellano, G. Corob Cook and P.H. Kropholler. A property of the lamplighter group. *Topological Algebra and its Applications*, 8(1) (2020):1-4. doi:10.1515/taa-2020-0001
<https://arxiv.org/abs/1909.01094>
- (5) I. Castellano and G. Corob Cook, Finiteness properties of totally disconnected locally compact groups. *Journal of Algebra* 543 (2020): 54-97.
<https://arxiv.org/abs/1901.08470>
- (4) I. Castellano. Rational discrete first degree cohomology for totally disconnected locally compact groups. *Mathematical Proceedings of the Cambridge Philosophical Society* 168(2) (2020): 361-377.
<https://arxiv.org/abs/1506.02310>
- (3) I. Castellano and A. Giordano Bruno. Topological entropy for locally linearly compact vector spaces. *Topology and its Applications* 252 (2019): 112-144.
<https://arxiv.org/abs/1701.00676>
- (2) I. Castellano, and A. Giordano Bruno. Algebraic entropy in locally linearly compact vector spaces. *Rings, Polynomials, and Modules*. Springer, Cham (2017): 103-127.
<https://arxiv.org/abs/1612.01899>
- (1) I. Castellano and Th. Weigel. Rational discrete cohomology for totally disconnected locally compact groups. *Journal of Algebra* 453 (2016): 101-159.
<https://arxiv.org/abs/1503.02436>

Unpublished:

- (0) (Ph.D. Thesis) I. Castellano, Stallings' decomposition theorem for totally disconnected locally compact groups. (2015)

Research IDs:

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Arxiv <https://arxiv.org/search/?searchtype=author&query=Castellano%2C+I>

Scopus 57170071100

<https://www.scopus.com/authid/detail.uri?authorId=57170071100>

Web Of Science F-3411-2019

<https://publons.com/researcher/1772374/ilaria-castellano/>

Google Scholar

https://scholar.google.com/citations?view_op=list_works&hl=en&user=CJImpFgAAAAJ