

Diego Martínez (cv)

Institution *KU Leuven*
Position *Postdoctoral researcher*
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WORK EXPERIENCE

- Postdoc** Postdoctoral researcher **University:** *KU Leuven, Department of Mathematics*
Supervisor: Prof. Gábor Szabó from September 2024 until now
- Postdoc** Postdoctoral researcher **University:** *University of Münster, Mathematical Institute*
Supervisor: Prof. Wilhelm Winter from October 2021 until August 2024
- PhD** Ph.D. student **Institutions:** *Universidad Carlos III de Madrid and Instituto de Ciencias Matemáticas*
Supervisor: Prof. Fernando Lledó from April 2017 until March 2021
- Master** Master's student **University:** *Universidad Autónoma de Madrid, Departamento de Matemáticas*
Supervisor: Prof. Fernando Lledó from September 2016 to August 2017

EDUCATION

- Ph.D.** University: *Universidad Carlos III de Madrid (UC3M) and Instituto de Ciencias Matemáticas (ICMAT)*
Supervisor: *Prof. Fernando Lledó*, Program: *Ph.D. in Mathematics (international distinction)*
Thesis: *Amenability and coarse geometry of (inverse) semigroups and C^* -algebras*
Grade: *excellent - cum laude* from September 2016 to March 2021
- Master** University: *Universidad Autónoma de Madrid (UAM)*
Supervisor: *Fernando Lledó*, Program: *Master Program in Mathematics and Applications (60 ects)*
Thesis: *Amenability, paradoxical decompositions and applications*
Grade: *10/10* from September 2015 to July 2016
- Degree** University: *Universidad Autónoma de Madrid (UAM)* from September 2010 to June 2015
Program: *Graduate program in Computer Engineering*
- Degree** University: *Universidad Autónoma de Madrid (UAM)* from September 2010 to June 2015
Program: *Graduate program in Mathematics*
Thesis: *Entropía y códigos de Huffman (in Spanish, grade 10/10)*

PUBLICATIONS

- [11] A. Buss and D. Martínez, *Essential groupoid amenability and nuclearity of groupoid C^* -algebras*, <https://arxiv.org/pdf/2501.01775> (2025).
- [10] D. Martínez and F. Vigolo, *A rigidity framework for Roe-like algebras*, <https://arxiv.org/abs/2403.13624> (2024).
- [9] D. Martínez and F. Vigolo, *Roe algebras of coarse spaces via coarse geometric modules*, <https://arxiv.org/abs/2312.08907> (2023).
- [8] D. Martínez and F. Vigolo, *C^* -rigidity of bounded geometry metric spaces*, accepted for publication in Publ. Math. IHES (2025).

- [7] Y. C. Chung, D. Martínez and N. Szakács, *Quasi-countable inverse semigroups as metric spaces, and the uniform Roe algebras of locally finite inverse semigroups*, to appear in Groups, Geom. Dyn. (2024).
- [6] A. Buss and D. Martínez, *Approximation properties of Fell bundles over inverse semigroups and non-Hausdorff groupoids*, Adv. Math. **431** (2023) 109251 (pp. 54) DOI: 10.1016/j.aim.2023.109251.
- [5] D. Martínez, *A note on the quasi-diagonality of inverse semigroup reduced C^* -algebras*, J. Oper. Th. **90** (2023) (pp. 17) DOI: 10.7900/jot.2021nov29.2424.
- [4] F. Lledó and D. Martínez, *A note on commutation relations and finite dimensional approximations*, Expo. Math. (2022) DOI: 10.1016/j.exmath.2022.08.004.
- [3] F. Lledó and D. Martínez, *The uniform Roe algebra of an inverse semigroup*, J. Math. Anal. Appl. **499** (2021) 124996 (pp. 28) DOI: 10.1016/j.jmaa.2021.124996.
- [2] P. Ara, F. Lledó and D. Martínez, *Amenability and paradoxicality in semigroups and C^* -algebras*, J. Funct. Anal. **279** (2020) 108530 (pp. 43) DOI: 10.1016/j.jfa.2020.108530.
- [1] F. Lledó and D. Martínez, *Notions of infinity in quantum physics*, 60 Years Alberto Ibort Fest Classical and Quantum Physics, Chapter 14, Springer (2019) (pp. 14) DOI: 10.1007/978-3-030-24748-5_14.

SELECTED INTERNATIONAL TALKS

- *Cartan subalgebras, cp maps, and their inductive limits*,
Cartan Subalgebras in Operator Algebras, and Topological Full Groups, BIRS, Canada Nov. 2024
- *Amenability of essential inverse semigroup C^* -algebras*,
Plenary talk, SEmigroups, grOUoids and C^* -aLgebras, KIAS, Korea July 2024
- *Roe algebras are rigid*,
Analysis Seminar, Newcastle University, UK May 2024
- *Amenability notions and Fell bundles*,
Combinatorial $*$ -algebras, MFO, Oberwolfach March 2024
- *Large-scale geometry of group-like objects*,
Colloquium, University of Göttingen May 2023
- *Minicourse on C^* -algebras, their diagonals, and (inverse) semigroup actions*,
Topics in Geometric Semigroup Theory, University of York June 2022
- *Exactness and geometric properties of inverse semigroups*,
Non-commutativity in the North, Göteborgs Universitet March 2022
- *C^* vs coarse properties of inverse semigroups*,
Analysis online seminar, University of Glasgow Oct. 2021
- *Schützenberger graphs and property A, or how to see exactness of the reduced semigroup C^* -algebra*,
 C^* -algebras and geometry of groups and semigroups, University of Oslo March 2021
- *Non-group like metrics appearing in group-like objects*,
UK Virtual Operator Algebras Seminar, United Kingdom Dec. 2020
- *Some quasi-isometric invariants for inverse semigroups*,
York semigroup (online talk), University of York, United Kingdom May 2020
- *Coarse geometry and inverse semigroups*,
Colloquium talk, University of Montana, USA Nov. 2019
- *Traces in inverse semigroup Roe algebras*,
YMC*A, University of Copenhagen, Denmark Aug. 2019
- *Amenability in inverse semigroups*,
SandGAL-2019, University of Cremona, Italy June 2019
- *Amenability in inverse semigroups and C^* -algebras*,
II Joint Meeting Spain-Brazil in Mathematics, Universidad de Cádiz, Spain Dec. 2018

TEACHING

- **Student Teaching Assistant**, at KU Leuven, Fall 2024
Differentiaalvergelijkingen (differential equations), Reeks 11+12. Bachelor in Bio-engineering.
- **Cartan Subalgebras**, at the University of Münster Fall 2022
Reading seminar
- **TFG committee member**, at UC3M Fall 2020
- **Quasi-diagonality and the Tikuisis–White–Winter Theorem**, at Texas A&M Fall 2019
Reading seminar
- **TFG committee member**, at UC3M Spring 2019
- **Student Teaching Assistant**, at UC3M Fall 2018
Cálculo I (calculus I), group 45. Bachelor in Aerospace Engineering
- **Student Teaching Assistant**, at UC3M Fall 2017
Álgebra lineal I (linear Algebra I), group 49. Bachelor in Energy Engineering

PARTICIPATION IN COMMITTEES

- Member of the **Early Career Committee**,
at the University of Münster 2023 – present.

REVIEWER OF

- zbMATH Open 2022 – present.
- MathSciNet 2023 – present.

SCHOLARSHIPS AND AWARDS

- **Formación de personal investigador (FPI)** - Severo Ochoa 2017 – 2021
Grant supporting the fulfillment of the PhD from the MINECO (Spanish Ministry of Economy)
- **Mathematics Department Scholarship (UAM)** 2015 – 2016
Grant intended to support the study of the Master in Mathematics (one of the top 5)
- **BIT Summer School in Beijing** 2012
Grant awarded to pay for an intensive course on Chinese culture and language

RESEARCH VISITS

- **University of Wollongong**, Australia
Oct.–Nov. 2023
- **Texas A&M**, USA Aug.–Dec. 2019
Department of Mathematics
- **UAB**, Spain 2017 & 18
Centre de Recerca Matemàtica
- **University of Münster**, Germany May 2016
Institute of Theoretical Mathematics

ORGANIZER OF

- **Junior Seminar**, ICMAT Sep. 2018–June 2021
Local seminar for Ph.D. students
- **OAGAQI** thematic semester, March–June 2019
Thematic semester about operator algebras, groups and applications to quantum information
- **JAE School**, ICMAT June 2017
School that serves as an introduction to research for undergraduate students

OUTREACH

- **Outreach newspaper** article in *El País* 2019
– *Ganar juegos usando la mecánica cuántica*
- **Outreach newspaper** article in *El País* 2017
– *Dándole vueltas al infinito*

LANGUAGES

- **Spanish:** Native
- **English:** Proficient (C2)
- **German:** Beginner (A2)
- **Dutch:** Beginner (A1)

LIST OF ALL TALKS

- *C*-algebras associated to (semi-)groups and their actions*,
Invited talk, Seminar on C*-algebras, University of Manchester, UK Nov. 2024
- *Cartan subalgebras, cp maps, and their inductive limits*,
Cartan Subalgebras in Operator Algebras, and Topological Full Groups, BIRS, Canada Nov. 2024
- *Amenability of essential inverse semigroup C*-algebras*,
SEmigroups, grOUpoids and C*-aLgebras, KIAS, Korea July 2024
- *Roe algebras are rigid*,
Analysis Seminar, University of Glasgow, UK May 2024
- *Roe algebras are rigid*,
Analysis Seminar, Newcastle University, UK May 2024
- *Generalized (semigroup) dynamics and their C*-algebras*,
Joint seminar in Semigroups and Dynamical Systems, University of Manches, UK April 2024
- *Amenability notions and Fell bundles*,
Combinatorial *-algebras, MFO, Oberwolfach March 2024
- *Dynamical systems and nuclear C*-algebras*,
Victoria University in Wellington Sept. 2023
- *Nuclear C*-algebras and amenable groupoids*,
Seminar, University of Wollongong Nov. 2023
- *Generalized dynamics yielding nuclear C*-algebras*,
Seminar, University of Southern Denmark Sept. 2023
- *Large-scale geometry of group-like objects*,
Colloquium, University of Göttingen May 2023
- *Z-stability of Hausdorff étale groupoids*,
Kleines seminar, University of Münster Dec. 2022
- *An overview of classification*,
Kleines seminar, University of Münster Dec. 2022
- *Geometric aspects of semigroups and their C*-algebras*,
Postdoc colloquium, University of Münster Nov. 2022
- *The D_m invariant*,
Reading seminar on Cantor minimal systems, University of Münster June 2022
- *Invariance of entropy under Shannon orbit equivalence*,
Reading seminar on entropy theory, University of Münster June 2022
- *Minicourse on C*-algebras, their diagonals, and (inverse) semigroup actions*,
Topics in Geometric Semigroup Theory, University of York June 2022
- *Inverse semigroups of asymptotic dimension 0 and their uniform Roe algebras*,
Topics in Geometric Semigroup Theory, University of York June 2022
- *Exactness and geometric properties of inverse semigroups*,
Non-commutativity in the North, Göteborgs Universitet March 2022
- *The Boutonnet-Houdayer non-commutative Nevo-Zimmer theorem, part 2*,
Kleines seminar on rigidity, University of Münster Jan. 2022
- *Three properties from three perspectives of inverse semigroups*,
Oberseminar in Operator Algebras, University of Münster Oct. 2021
- *C* vs coarse properties of inverse semigroups*,
Analysis online seminar, University of Glasgow Oct. 2021

- *C** and geometric properties of inverse semigroups,
Online seminar in non-commutative geometry, NYC University Oct. 2021
- *Inverse semigroups as a framework for quasi-diagonality*,
Microworkshop in Operator Algebras, University of Münster Oct. 2021
- *Inverse semigroups, their non-group-like-geometries and their amenability and property A*,
Online seminar of Operator Algebras, Universidade Santa Catarina Sep. 2021
- *Schützenberger graphs and property A, or how to see exactness of the reduced semigroup C*-algebra*,
C*-algebras and geometry of groups and semigroups, University of Oslo March 2021
- *Amenability and coarse geometry of (inverse) semigroups and C*-algebras*,
Thesis defense, UC3M-ICMAT, Madrid, Spain March 2021
- *Amenability and coarse geometry of (inverse) semigroups and C*-algebras*,
Q-Math research group, Mathematics Department UC3M, Madrid, Spain Feb. 2021
- *Ultra-stuff*,
Junior seminar, ICMAT-UAM-UCM-UC3M, Madrid, Spain Feb. 2021
- *Non-group like metrics appearing in group-like objects*,
UK Virtual Operator Algebras Seminar, United Kingdom Dec. 2020
- *An introduction to Connes' Embedding Problem*,
MIP*=Re seminar, Technische Universität München, Germany Dec. 2020
- *Some quasi-isometric invariants for inverse semigroups*,
York semigroup (online talk), University of York, United Kingdom May 2020
- *Quasi-diagonality vs amenability of discrete groups*,
Group theory seminar UAM, Madrid, Spain March 2020
- *Quasi-diagonality and finite-dimensional approximations*,
Q-Math research group, Mathematics Department UC3M, Madrid, Spain Feb. 2020
- *Quasi-diagonality and approximation of operators*,
Junior seminar, ICMAT-UAM-UCM-UC3M, Madrid, Spain Jan. 2020
- *Coarse geometry and inverse semigroups*,
Colloquium talk, University of Montana, USA Nov. 2019
- *Coarse geometry and inverse semigroups*,
GSO seminar, Texas A&M University, Texas, USA Nov. 2019
- *Quasi-diagonality and relation to index and group theory*,
Student seminar in groups and dynamics, Texas A&M University, Texas, USA Nov. 2019
- Reading seminar on operator algebras, Sep. - Nov. 2019
Reading seminar on quasi-diagonality and related topics, Texas A&M University, Texas, USA
- *Traces in inverse semigroup Roe algebras*, Aug. 2019
YMC*A, University of Copenhagen, Denmark
- *Amenability in inverse semigroups*, June 2019
SandGAL-2019, University of Cremona, Italy
- *Inverse semigroup Roe algebras*, March 2019
OAGAQI thematic semester, Workshop I, ICMAT, Madrid, Spain
- *Amenability in inverse semigroups and C*-algebras*, Dec. 2018
II Joint Meeting Spain-Brazil in Mathematics, Universidad de Cádiz, Spain
- *Amenability in inverse semigroups and C*-algebras*, Nov. 2018
Q-Math research group, Mathematics Department UC3M, Madrid, Spain
- *Amenability in semigroups and C*-algebras*, June 2018
Seminar in Ring Theory, *Universitat Autònoma de Barcelona*, Barcelona, Spain

- *Esquemas piramidales y porqué deberíamos pagar menos por las naranjas*, June 2018
Junior seminar, ICMAT–UAM–UCM–UC3M, Madrid, Spain
- *Amenability in (Semi)-groups and Algebras*, May 2018
Bringing Young MATHematicians Together (BYMAT), ICMAT, Madrid, Spain