Diego Martínez (cv)

Institution	*KU Leuven*
Position	*Postdoctoral researcher*
Website	*https://diego-mmg.github.io/*
Email	*diego.martinez@kuleuven.be*

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*, Publ. Math. IHES (2025) DOI: 10.1007/s10240-025-00155-3.

[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. (2025).

[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

- *Finite distortion operators, Roe algebras, and coarse invariants*,
  Functional and Metric Analysis, and their Interactions, BIRS, Spain,   May 2025
- *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, grOUpoids 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*,   Dec. 2018
  II Joint Meeting Spain-Brazil in Mathematics, Universidad de Cádiz, Spain

Teaching

- **Master's Thesis**, at KU Leuven,   Fall 25/Spring 26
- **Functional Analysis**, at KU Leuven,   Fall 25/Spring 26
- **Bachelor's Final Degree Project**, at KU Leuven,   Spring 2025
- **Master Thesis Reader**, at KU Leuven,   Spring 2025
- **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 **Party Committee**,
  at KU Leuven   2024 – present.
- Member of the **Early Career Committee**,
  at the University of Münster   2023 – 2024.

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 Matematica
- **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

- *Finite distortion operators, Roe algebras, and coarse invariants*,
  Functional and Metric Analysis, and their Interactions, BIRS, Spain,   May 2025
- *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
- *$\mathcal{Z}$-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*,   March 2021
  Thesis defense, UC3M-ICMAT, Madrid, Spain
- *Amenability and coarse geometry of (inverse) semigroups and C*-algebras*,   Feb. 2021
  Q-Math research group, Mathematics Department UC3M, Madrid, Spain
- *Ultra-stuff*,   Feb. 2021
  Junior seminar, ICMAT–UAM–UCM–UC3M, Madrid, Spain
- *Non-group like metrics appearing in group-like objects*,   Dec. 2020
  UK Virtual Operator Algebras Seminar, United Kingdom
- *An introduction to Connes' Embedding Problem*,   Dec. 2020
  MIP*=Re seminar, Technische Universität München, Germany
- *Some quasi-isometric invariants for inverse semigroups*,   May 2020
  York semigroup (online talk), University of York, United Kingdom
- *Quasi-diagonality vs amenability of discrete groups*,   March 2020
  Group theory seminar UAM, Madrid, Spain
- *Quasi-diagonality and finite-dimensional approximations*,   Feb. 2020
  Q-Math research group, Mathematics Department UC3M, Madrid, Spain
- *Quasi-diagonality and approximation of operators*,   Jan. 2020
  Junior seminar, ICMAT–UAM–UCM–UC3M, Madrid, Spain
- *Coarse geometry and inverse semigroups*,   Nov. 2019
  Colloquium talk, University of Montana, USA
- *Coarse geometry and inverse semigroups*,   Nov. 2019
  GSO seminar, Texas A&M University, Texas, USA
- *Quasi-diagonality and relation to index and group theory*,   Nov. 2019
  Student seminar in groups and dynamics, Texas A&M University, Texas, USA
- 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, *Universität Autónoma 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