

# Diego Martínez (cv)



**Institution** University of Münster, Mathematical Institute  
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## WORK EXPERIENCE

## EDUCATION

**Ph.D.** University: *Universidad Carlos III de Madrid* (UC3M) and *Instituto de Ciencias Matemáticas* (ICMAT)  
Supervisor: *Fernando Lledó*, Program: *Ph.D. in Mathematics* (international distinction)

**Thesis:** *Amenability and coarse geometry of (inverse) semigroups and  $C^*$ -algebras*

**Grading:** 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**

**Grading:** 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, grading 10/10)

## PUBLICATIONS

- [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*, <https://arxiv.org/abs/2211.09624> (2022).
  - [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. Op. 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. Func. 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.

## PREPRINTS IN PREPARATION

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- [5] A. Buss, J. Kranz and D. Martínez, *Exactness and amenability at infinity of Fell bundles over inverse semigroups*.
- [4] A. Buss and D. Martínez, *Cross-sectional  $C^*$ -algebras and their approximation properties*.
- [3] D. Martínez and F. Vigolo, *Roe-like algebras of coarse spaces*.
- [2] D. Martínez and F. Vigolo, *A rigidity framework for Roe-like algebras*.
- [1] D. Martínez and A. Sims,  *$C^*$ -Cartan encoding systems and their groupoid models*.

## SELECTED INTERNATIONAL TALKS

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- *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
- *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

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- **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  
Calculus I, group 45. Bachelor in Aerospace Engineering
- **Student Teaching Assistant**, at UC3M Fall 2017  
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
- **University of Münster**, Germany Oct. 2021–present
- **Texas A&M**, USA Aug.–Dec. 2019  
Department of Mathematics
- **UAB**, Spain June 2018  
Centre de Recerca Matemática
- **UAB**, Spain Nov. 2017  
Centre de Recerca Matemática
- **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)

## LIST OF ALL TALKS

- *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*,  
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,  
*Reading seminar on quasi-diagonality and related topics*, Texas A&M University, Texas, USA Sep. - 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
- *Inverse semigroup Roe algebras*,  
OAGAQI thematic semester, Workshop I, ICMAT, Madrid, Spain March 2019
- *Amenability in inverse semigroups and  $C^*$ -algebras*,  
II Joint Meeting Spain-Brazil in Mathematics, Universidad de Cádiz, Spain Dec. 2018
- *Amenability in inverse semigroups and  $C^*$ -algebras*,  
Q-Math research group, Mathematics Department UC3M, Madrid, Spain Nov. 2018
- *Amenability in semigroups and  $C^*$ -algebras*,  
Seminar in Ring Theory, Universitat Autònoma de Barcelona, Barcelona, Spain June 2018
- *Esquemas piramidales y porqué deberíamos pagar menos por las naranjas*,  
Junior seminar, ICMAT–UAM–UCM–UC3M, Madrid, Spain June 2018
- *Amenability in (Semi)-groups and Algebras*,  
Bringing Young Mathematicians Together (BYMAT), ICMAT, Madrid, Spain May 2018