

Federico Cantero Morán

Curriculum Vitae, January 2016

Degrees

- 2013 **PhD in Mathematics**, *University of Barcelona*, Barcelona, Spain.
Thesis title: Homology stability for spaces of surfaces
Supervisors: Carles Casacuberta and Oscar Randal-Williams
- 2007 **Master in Advanced Mathematics**, *University of Barcelona*.
- 2007 **Graded in Mathematical Sciences**, *Complutense University of Madrid*.

Positions

- 2015–2016 **Postdoctoral researcher**, *Catholic University of Louvain*, Louvain-la-neuve, Belgium.
- 2013–2015 **Postdoctoral researcher**, *University of Münster*, Münster, Germany.
- 2012–2013 **Teaching assistant**, *Pompeu Fabra University*, Barcelona, Spain.
- 2008–2012 **PhD student**, *University of Barcelona*, Barcelona, Spain.
FPI Grant BES-2008-002642, funded by the Spanish Ministry of Science and Education

Publications and preprints

- [1] **Homological stability for spaces of surfaces**, [arXiv:1304.3006](https://arxiv.org/abs/1304.3006) (2013).
Joint with Oscar Randal-Williams
- [2] **On homological stability for configuration spaces in closed background manifolds**, *Documenta Mathematica* 20, 753-805 (2015).
Joint with Martin Palmer
- [3] **A note on hyperspaces and the compact-open topology**, [arXiv:1412.4249](https://arxiv.org/abs/1412.4249) (2014).
- [4] **The space of merging submanifolds in \mathbb{R}^n** , [arXiv:1412.4938](https://arxiv.org/abs/1412.4938) (2014).
- [5] **A metric for the space of submanifolds of Galatius and Randal-Williams**, [arXiv:1512.06849](https://arxiv.org/abs/1512.06849) (2015).

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1/8

Awards

- 25 October 2013 **Best Poster of the 20th Spanish Topology Meeting**, Madrid, Spain.
awarded by the Spanish Topology Network for a poster entitled *A metric for the space of submanifolds of Galatius and Randal-Williams*
- 22 October 2011 **Best Poster of the 18th Spanish Topology Meeting**, Seville, Spain.
awarded by the Spanish Topology Network for a poster entitled *Homology of configuration spaces of surfaces*

Invited talks

- 1 July 2015 **On homological stability for configuration spaces in closed background manifolds**, *Fourth Spanish Young Topologists Meeting*, Complutense University of Madrid, Madrid, Spain.
- 30 April 2015 **On homological stability for configuration spaces in closed background manifolds**, *Prof. Bunke Seminar*, University of Regensburg, Regensburg, Germany.
- 12 February 2015 **On homological stability for configuration spaces in closed background manifolds**, *Algebra Seminar*, University of Santiago de Compostela, Santiago de Compostela, Spain.
- 4 February 2015 **On homological stability for configuration spaces in closed background manifolds**, *Congress of the Royal Spanish Mathematical Society*, University of Granada, Granada, Spain.
- 8 January 2015 **On homological stability for configuration spaces in closed background manifolds**, *Topology Seminar*, Autonomous University of Barcelona, Bellaterra, Barcelona, Spain.
- 6 November 2014 **The stable homology of the space of embedded surfaces**, *Topology Seminar*, Catholic University of Louvain, Louvain-la-Neuve, Belgium.
- 30 June – 4 July 2014 **On homological stability for configuration spaces in closed background manifolds**, *Young Topologists Meeting*, University of Copenhagen, Copenhagen, Denmark.
- 12–14 December 2013 **The stable homology of the space of embedded surfaces: Closed background manifolds**, *Second Spanish Young Topologists Meeting*, UPC, Barcelona, Spain.
- 16–20 September 2013 **Characteristic classes of surfaces subbundles**, *Congreso de Jóvenes Investigadores de la Real Sociedad Matemática Española*, Seville, Spain.
- 18 February 2013 **Homological stability for spaces of submanifolds**, *Seminario del Departamento de Matemáticas*, UNED, Madrid, Spain.
- 21–25 January 2013 **Homological stability for spaces of submanifolds**, *Congreso de la Real Sociedad Matemática Española*, Santiago de Compostela, Spain.

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- 19 October 2012 **The space of surfaces in a manifold**, *Conference of Young Researchers on Mathematics*, organized by the Catalan Mathematical Society, Barcelona, Spain.
- 10 July 2012 **Homological stability for spaces of surfaces in a manifold**, *Topologie Oberseminar*, University of Münster, Münster, Germany.
- 2–6 July 2012 **Homological stability for spaces of surfaces in a manifold**, *Young Topologists Meeting*, University of Copenhagen, Copenhagen, Denmark.
- 1–2 June 2012 **Stable homology of the space of surfaces in a manifold**, *Homotopy in Algebra, Geometry and Topology*, University of Santiago de Compostela, Santiago de Compostela, Spain.
- 15 July 2011 **Homological stability for configurations of surfaces**, *Topology Seminar*, Autonomous University of Barcelona, Bellaterra, Barcelona, Spain.

Contributed Talks

- 16 December 2015 **The stable homology of the space of embedded surfaces**, *Topology Seminar*, Catholic University of Louvain, Louvain-la-Neuve, Belgium.
- 5 March 2015 **Orthogonal Calculus**, *Leray Seminar*, University of Münster, Münster, Germany.
- 19 January 2015 **Surgery in the middle dimension II**, *Topology Seminar*, University of Münster, Münster, Germany.
- 29 October 2014 **Real K-theory**, *Seminar on positive scalar curvature*, University of Münster, Münster, Germany.
- 30 May 2014 **Homological stability for configuration spaces in closed background manifolds**, *Leray Seminar*, University of Münster, Münster, Germany.
- 28 November 2013 **Spaces of connected subsurfaces II**, *Leray Seminar*, University of Münster, Münster, Germany.
- 14 November 2013 **Spaces of connected subsurfaces I**, *Leray Seminar*, University of Münster, Münster, Germany.
- 24 March 2012 **The stable homology of the space of embedded surfaces in a manifold**, *Higher homotopy in Barcelona*, University of Barcelona, Barcelona, Spain.
- 28 February 2012 **Pontryagin's theorem**, *SIMBa*, University of Barcelona, Barcelona, Spain.
- 23 October 2011 **Homological stability for configuration spaces of surfaces**, *Higher Homotopy in Seville*, University of Seville, Seville, Spain.
- 4 February 2011 **Configuration spaces of oriented surfaces**, *Higher Homotopy in London*, London Metropolitan University, London, United Kingdom.

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3/8

- 11 November 2010 **The Pontryagin–Thom construction**, *Junior Topology Seminar*, Autonomous University of Barcelona, Bellaterra, Barcelona, Spain.
- June 2011 **Symmetric spectra**, *Junior Topology Seminar*, Autonomous University of Barcelona, Bellaterra, Barcelona, Spain.
- 14 April 2010 **Model category structure of DGCAT**, *Seminar of the research group on geometry and algebraic topology*, University of Barcelona, Barcelona, Spain.
- January 2010 **The classification of TCFT's**, *Seminar of the research group on geometry and algebraic topology*, University of Barcelona, Barcelona, Spain.
- 25 November 2009 **Formal completion**, *Junior Topology Seminar*, Autonomous University of Barcelona, Bellaterra, Barcelona, Spain.
- 17 February 2009 **2-Groups**, *Seminar on Groupoids and Homotopy*, University of Glasgow, Glasgow, United Kingdom.
- 31 October 2007 **The cohomology of the mapping class group**, *HOCAT seminar*, Centre de Recerca Matemàtica, Bellaterra, Barcelona, Spain.

Posters

- 25–26 October 2013 **A metric for the space of submanifolds of Galatius and Randal-Williams**, *20th Spanish Topology Meeting*, ICMAT, Madrid, Spain.
- 21–22 October 2011 **Homology of configuration spaces of surfaces**, *18th Spanish Topology Meeting*, University of Seville, Seville, Spain.
- 23–24 October 2009 **Categories and topology**, *16th Spanish Topology Meeting*, University of Almería, Almería, Spain.

Conferences attended

- 7–11 September 2015 **Third Congress of Young Researchers of the Royal Spanish Mathematical Society**, *University of Murcia*, Murcia, Spain.
- 22–26 June 2015 **Summer School on Functor Calculus**, *University of Münster*, Münster, Germany.
- 21–22 November 2014 **22th NRW Topology Meeting**, *University of Bonn*, Bonn, Germany.
- 23–27 June 2014 **Manifolds, K-theory and related topics**, *Inter-University Center*, Dubrovnik.
- 27–31 January 2014 **Introductory Workshop on Algebraic Topology**, *MSRI*, Berkeley.
- 8–18 October 2013 **Summer School on field theories, conformal nets and Kac-Moody groups and 17th Conference on Twists, generalised cohomology and applications**, *University of Münster*, Münster, Germany.

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- 26–30 August 2013 **Masterclass on Homological Stability**, *University of Copenhagen*, Copenhagen, Denmark.
- 30 May – 1 June 2013 **Homotopy Methods in Algebra, Geometry and Topology**, *Polytechnic University of Barcelona*, Barcelona, Spain.
- 19–20 October 2012 **XIX Spanish Topology Meeting**, *University of A Coruña*, A Coruña, Spain.
- 12–16 December 2011 **Conference on the Tautological Ring**, *University of Copenhagen*, Copenhagen, Denmark.
- 2 December 2011 **Thematic Day on Topological Quantum Field Theories**, *Mathematical Institute of the University of Barcelona*, Barcelona, Spain.
- 18–21 July 2011 **Summer School on Groups and Manifolds**, *University of Münster*, Münster, Germany.
- 9–15 August 2010 **West Coast Algebraic Topology Summer School**, *University of Oregon*, Eugene, Oregon, USA.
- 10–14 May 2010 **Course on Applied and Toric Topology**, *University of Malaga*, Málaga, Spain.
- 17–26 March 2010 **Second Advanced Course on Geometry and Physics: Geometric Langlands and Gauge Theory**, *Centre de Recerca Matemàtica*, Bellaterra, Barcelona, Spain.
- 12–13 March 2010 **Thematic day on Homotopical Methods in Geometry and Algebra**, *University of Seville*, Seville, Spain.
- 22–27 January 2010 **CSASC 2010**, *University of Prague*, Prague, Czech Republic.
- 20 November 2009 **Thematic day on Symmetric Products**, *Complutense University of Madrid*, Madrid, Spain.
- 19–23 October 2009 **Advanced course on TQFT**, *University of Almería*, Almería, Spain.
- 7–12 September 2009 **Advanced school on Homotopy Theory and Algebraic Geometry**, *University of Seville*, Seville, Spain.
- 1–5 June 2009 **Conference on Geometry and Topology**, *University of Münster*, Münster, Germany.
- 20–30 April 2009 **Thematic School on Operads and International Conference on Operads**, *Centre International de Rencontres Mathématiques*, Luminy, Marseille.
- 15–19 September 2008 **International Conference on K-theory and Homotopy Theory**, *University of Santiago de Compostela*, Santiago de Compostela, Spain.
- 10–12 September 2008 **V Seminar on Categories and Applications**, *University of Vigo*, Pontevedra, Spain.

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5/8

- July 2008 **HOCAT 2008**, *Centre de Recerca Matemàtica*, Bellaterra, Barcelona, Spain.
- 16–20 June 2008 **Workshop on Categorical Groups**, *University of Barcelona*, Barcelona, Spain.
- 14–19 April 2008 **Higher Operads Week**, *Centre de Recerca Matemàtica*, Bellaterra, Barcelona, Spain.
- 1–5 April 2008 **Workshop on Topological and Differential Stacks**, *Centre de Recerca Matemàtica*, Bellaterra, Barcelona, Spain.
- 14 february 2008 **Advanced Course on Simplicial Methods in Higher Categories**, *Centre de Recerca Matemàtica*, Bellaterra, Barcelona, Spain.
- 5–14 November 2007 **Workshop on Derived Categories**, *Centre de Recerca Matemàtica*, Bellaterra, Barcelona, Spain.
- 6–9 June 2007 **IV Seminar on Categories and Applications**, *Centre de Recerca Matemàtica*, Bellaterra, Barcelona, Spain.
- 26–28 March 2007 **Lectures on the Topology of Moduli Spaces**, *Catholic University of Louvain*, Louvain-la-Neuve, Belgium.
- 22–30 August 2006 **International Congress of Mathematicians**, Madrid, Spain.

Stays

- August 2015 **Hausdorff Institute for Mathematics**, Bonn, invited for the Hausdorff Trimester Programm [Homotopy theory, manifolds and field theories](#).
- February–June 2011 **University of Copenhagen**, *Centre for Symmetry and Deformation*, Copenhagen, Denmark, visiting Prof. Randal-Williams.
Short stay EEBB-I-2011-03207 within the FPI program of the Spanish Ministry of Science and Innovation
- January–March 2009 **University of Glasgow**, *Department of Mathematics*, Glasgow, United Kingdom, visiting Prof. Leinster.
Short stay EST2009010983 within the FPI program of the Spanish Ministry of Science and Education

Short stays

- April 2015 **University of Regensburg**, *Department of Mathematics*, Regensburg, visiting Georgios Raptis at the research group of Prof. Bunke.
- May 2013 **University of Cambridge**, *Department of Mathematics*, Cambridge, United Kingdom, visiting Prof. Randal-Williams.
- August 2012 **University of Copenhagen**, *Centre for Symmetry and Deformation*, Copenhagen, Denmark, visiting Prof. Randal-Williams.

Research Projects

- 2014–2016 **Enhanced homotopy**, *researcher*, awarded by the Spanish Ministry of Science and Innovation, ref. no. MTM2013-42178-P, main researcher: Prof. Carles Casacuberta, University of Barcelona.
- 2010–2013 **Higher order homotopy in algebra and geometry**, *researcher*, awarded by the Spanish Ministry of Science and Innovation, ref. no. MTM2010-15831, main researcher: Prof. Carles Casacuberta, University of Barcelona.
- 2009–2013 **Research group on geometry and algebraic topology**, *researcher*, Catalan Established Research Group, ref. no. 2009 SGR 119, main researcher: Prof. Carles Casacuberta, University of Barcelona.
- 2007–2009 **Higher order homotopy structures**, *researcher*, awarded by the Spanish Ministry of Science and Education, ref. no. MTM2007-63277, main researcher: Prof. Carles Casacuberta, University of Barcelona.

Education Experience

- 2012–2013 **Mathematics I**, *first year of the degree on International Business Economics*, Pompeu Fabra University, Barcelona, Spain.
Taught in English
- 2012–2013 **Mathematics I**, *first year of the degree on Business Administration*, Pompeu Fabra University, Barcelona, Spain.
- 2012, 2nd semester **Topology**, *2nd year of the degree on Mathematics*.
- 2012, 2nd semester **Geometry and Topology of Surfaces**, *3rd year of the degree on Mathematics*, University of Barcelona, Barcelona, Spain.
This was a new course and its problem assignments and sheets were designed by the two teaching assistants.
- 2010, 1st semester **Algebraic Topology**, *4th year of the degree on Mathematics*, University of Barcelona, Barcelona, Spain.

Organization of Seminars and Workshops

- January 2016 – present **Topology seminar**, *Catholic University of Louvain*, Louvain-la-neuve, Belgium.
- September 2015 **Third Congress of Young Researchers of the Royal Spanish Mathematical Society**, *University of Murcia*, Murcia, Spain.
Parallel session on Topology
- June 2015 **Summer School on Functor Calculus**, *University of Münster*, Münster, Germany.
- October 2014 – October 2015 **Leray Seminar**, *University of Münster*, Münster, Germany.

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7/8

- 21 October 2012 **Workshop Higher Homotopy in A Coruña**, *University of A Coruña*, A Coruña, Spain.
- November 2009 – January 2010 **Seminar of the research group on geometry and algebraic topology**, *University of Barcelona*, Barcelona, Spain.
- 2007–2008 **Seminar on Homological Algebra**, *University of Barcelona*, Barcelona, Spain.

Languages

Spanish	First Language	
English	Advanced	<i>CAE, 2007</i>
German	Intermediate	<i>Level G6 at Goethe Institut, 2003</i>
Portuguese	Intermediate	