

Curriculum Vitae

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Education

2013 - 2017 *PhD Mathematics, University of British Columbia (UBC), Vancouver, British Columbia, Canada.*

Dissertation: A simplicial approach to spaces of homomorphisms.

Supervisor: Alejandro Adem.

2010 - 2012 *Maestría en Ciencias Matemáticas, Universidad Nacional Autónoma de México.¹ (UNAM), Mexico City, Mexico.*

2005 - 2011 *Matemáticas, UNAM, Mexico City, Mexico.*

Academic Positions

2020 - pres. *Posdoc DGAPA, Instituto de Matemáticas (IM) UNAM, Mexico City, Mexico.*

2019 - 2020 *Postdoc, Københavns Universitet² (KU), Copenhagen, Denmark.*

2018 - 2019 *Posdoc FORDECYT, IM-UNAM, Mexico City, Mexico.*

2017 - 2018 *Postdoctoral Fellow, Indiana University-Purdue University Indianapolis (IUPUI), Indianapolis, Indiana, US.*

Awards and Scholarships

2019 - 2020 CONACYT³ *Beca de Posdoc en el Extranjero.* 2,000 USD monthly stipend to be used while a postdoc at KU, mentored by Søren Galatius.

2019 - 2021 CONACYT *Sistema Nacional de Investigadores: Candidato.* Award payable when in a full-time position in Mexico.

2013 - 2017 CONACYT *Beca de Doctorado en el Extranjero.* 1,100 USD monthly stipend plus tuition while a graduate student at UBC, supervised by Alejandro Adem.

¹National Autonomous University of Mexico

²The University of Copenhagen.

³Mexican National Science and Technology Council.

Invited Conference and Seminar Talks

A Lie group analogue of the coset poset of abelian subgroups

Feb 2021 *Topology Seminar* (online), *University of Rochester*, Rochester, New York, US.

Nov 2020 *Topology Seminar* (online), *Bilkent University*, Ankara, Turkey.

The coset poset of families of subgroups of a group

Oct 2020 *Congreso Nacional Virtual de la Sociedad Matemática Mexicana*, invited lecture.

The complex of affinely commutative sets

Oct 2019 *Algebra/Topology Seminar*, *KU*, Copenhagen, Denmark.

Mar 2019 *Modern Analysis and Geometry Seminar*, *IUPUI*, Indianapolis, Indiana, US.

Aug 2019 *Coloquio*, *IM-UNAM*, Cuernavaca, Mor. Mexico.

Representations and vector bundles with flat connections.

May 2019 *Coloquio*, *DM-CUCEI Universidad de Guadalajara*, Guadalajara, Jal. Mexico.

May 2019 *Jornadas de Topología*, *UJED*, Durango, Dgo. Mexico.

Commutative cocycles and stable bundles over surfaces

Feb 2019 *Seminario Geometría y Topología*, *IM-UNAM*, Oaxaca, Oax. Mexico.

Nov 2018 *Prospectos en Topología*, *CCM-UNAM*, Morelia, Mich. Mexico.

Nov 2018 *Jor. geometría, topología y dinámica*, *CCSG-CINVESTAV*, Mexico City, Mexico.

Dec 2017 *Seminario G. Torres de Geometría y Topología*, *IM-UNAM*, Mexico City, Mexico.

Classifying spaces for commutativity

Mar 2019 *Topology Seminar*, *Johns Hopkins University*, Baltimore, Maryland, US.

Apr 2018 *Topology Seminar*, *University of Rochester*, Rochester, New York, US.

Mar 2018 *Topology Seminar*, *Purdue University*, West Lafayette, Indiana, US.

Feb 2018 *Homotopy Theory Seminar*, *Ohio State University*, Columbus, Ohio, US.

Feb 2018 *Modern Analysis and Geometry Seminar*, *IUPUI*, Indianapolis, Indiana, US.

Nov 2017 *Algebraic Topology Seminar, Indiana University, Bloomington, Indiana, US.*

Oct 2017 *Geometry and Topology Seminar, Tulane University, New Orleans, Louisiana, US.*

Spaces of nilpotent representations in $SU(2)$

Aug 2017 *Modern Analysis and Geometry Seminar, IUPUI, Indianapolis, Indiana, US.*

Mar 2017 *Topology Seminar, UBC, Vancouver, British Columbia, Canada.*

Homotopy stable decomposition of spaces of homomorphisms

May 2017 *AMS Spring Eastern Sectional Meeting, CUNY Hunter College, New York, US.*

Feb 2016 *Topology Seminar, UBC, Vancouver, British Columbia, Canada.*

Teaching

Graduate studies

Institut for Matematiske Fag, KU

Apr - Jun 2020 Algebraic Topology 2 (with Piotr Pstragowski).

Undergraduate studies

Departamento de Matemáticas, Facultad de Ciencias, UNAM

Aug - Dec 2018 Topics in Algebra: Linear representations of finite groups.

Department of Mathematical Sciences, IUPUI

May - Jun 2018 Math 26600, Differential Equations.

Jan - May 2018 Math 16500, Analytic Geometry and Calculus 1.

Aug - Dec 2017 Math 26600, Differential Equations.

Aug - Dec 2017 Math 22200, Calculus for Technology 2.

Department of Mathematics, UBC

Jan - Apr 2017 Math 101, Integral Calculus with Applications to Physical Sciences and Engineering (Recitation Instructor).

Sep - Dec 2015 Math 180, Differential Calculus with Physical Applications.

Papers and Preprints

- The coset poset of nilpotent subgroups and the 2-Engel condition, with S. Gritschacher. Preprint 2020.
- Higher generation by abelian subgroups in Lie groups, with O. Antolín-Camarena and S. Gritschacher. arXiv:2009.12257, 2020. Submitted.
- The complex of affinely commutative sets, with O. Antolín-Camarena. arXiv:1906.07205, 2019.
- Nilpotent n -tuples in $SU(2)$, with O. Antolín-Camarena. *Proc. Edinburgh Math. Soc.* (2020), 1–26. doi:10.1017/S0013091520000309.
- Classifying spaces for commutativity in low-dimensional Lie groups, with O. Antolín-Camarena and S. Gritschacher. *Math. Proc. Cambridge Philos. Soc.* **169** (2020), no. 3, 433–478.
- Commutative cocycles and stable bundles over surfaces, with D. A. Ramras. *Forum Math.* **31** (2019), no. 6, 1395–1415.
- Cosimplicial groups and spaces of homomorphisms. *Algebr. Geom. Topol.* **17** (2017), no. 6, 3519–3545.