Pablo S. Ocal
Curriculum Vitae

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Education

2016–present	**Ph.D. Student, Mathematics**, *Texas A&M University*, TX. Advisor: Sarah Witherspoon
2015–2016	**M.Sc., Mathematics**, *Universite Pierre-et-Marie-Curie (Paris VI)*, France. Advisor: Bruno Kahn
2010–2015	**B.Sc., Mathematics**, *Universitat Autonoma de Barcelona*, Spain. Advisor: Jaume Aguade Bover
2010–2015	**B.Sc., Physics**, *Universitat Autonoma de Barcelona*, Spain. Advisor: Anna Laromaine

Publications and Preprints

2 **Homotopy liftings and Hochschild cohomology of some twisted tensor products**, with T. Oke and S. Witherspoon.
- arXiv:2005.06660 *(submitted)*.

1 **Gerstenhaber brackets on Hochschild cohomology of general twisted tensor products**, with T. Karadag, D. McPhate, T. Oke, and S. Witherspoon.
- arXiv:1909.02181 *(submitted)*.

Visiting Positions

Spring 2020 **Program Associate**, Mathematical Sciences Research Institute.
- Program: Quantum Symmetries

Conference Talks

2021

Jan **The Gerstenhaber bracket in relative Hochschild cohomology**, *Joint Mathematics Meetings*, Washington, District of Columbia.

2020

Aug **Homotopy liftings and Hochschild cohomology of some twisted tensor products**, *Encuentro Virtual de Algebra Homologica*, Universidad de Buenos Aires, Universidad Nacional de Mar del Plata, Universidad Nacional del Sur, Argentina.

[†]May **On the Gerstenhaber bracket in relative Hochschild cohomology of associative algebras**, *A Zoom Special Session on DG Methods in Commutative Algebra and Representation Theory*, University of Utah.

[†]May **On the Gerstenhaber bracket in relative Hochschild cohomology of associative algebras**, *AMS Spring Western Sectional Meeting*, California State University, Fresno.

[†]Canceled or hosted online due to COVID-19.

†Apr **Hochschild cohomology of twisted tensor product algebras**, *Graduate Student Topology and Geometry Conference*, Indiana University Bloomington.

†Apr **Hochschild cohomology of twisted tensor products**, *Underrepresented Students in Topology and Algebra Research Symposium*, University of Iowa.

Mar **The Gerstenhaber bracket on relative Hochschild cohomology**, *Southwest Local Algebra Meeting*, Tulane University.

Feb **On the Hochschild cohomology ring of some twisted tensor products of algebras**, *Seattle Noncommutative Algebra Day*, University of Washington.

2019

Jul **Hochschild cohomology of twisted tensor product algebras**, *Ragnar's Ramifications in Algebra and Geometry Emerging Workshop*, Fields Institute for Research in Mathematical Sciences, Canada.

Jul **Hochschild cohomology of twisted tensor product algebras**, *Research School on Quantum Symmetries*, Universidad de los Andes, Colombia.

Jun **Hochschild cohomology of twisted tensor product algebras (and brackets for certain quantum complete intersections)**, *Graduate Student Conference in Algebra, Geometry, and Topology*, Temple University.

Apr **Hochschild cohomology of twisted tensor product algebras**, *Texas-Oklahoma Representations and Automorphic Forms*, University of North Texas.

Mar **Hochschild cohomology of twisted tensor product algebras**, *Graduate Student Conference in Geometry and Topology*, University of Illinois at Urbana-Champaign.

Mar **Twisted tensor product algebras and compatibility of the bar resolution**, *Graduate Algebra Symposium*, University of Oklahoma.

Feb **An algebraist's view of the multinomial coefficients**, *Gathering in Graduate Expository Mathematics*, Texas A&M University.

2018

Oct **Relative Hochschild cohomology and its Gerstenhaber product**, *Graduate Algebra Symposium*, University of Texas at Arlington.

Apr **Using relative homological algebra in Hochschild cohomology**, *Graduate Algebra Symposium*, University of North Texas.

Mar **Using relative homological algebra in Hochschild cohomology**, *Gathering in Graduate Expository Mathematics*, Texas A&M University.

Seminar Talks

2020

Nov **TBD**, *Algebra and Combinatorics Seminar*, Texas A&M University.

TBD **TBD**, *Algebra Seminar*, University of Oregon.

TBD **TBD**, *Algebra Seminar*, University of Texas at Arlington.

Sep **TBD**, *Algebra Seminar*, Texas Tech University.

Sep **TBD**, *Quantum Symmetries Student Seminar*, The Ohio State University.

Aug **Representations of the special linear Lie algebra of order two**, *Quantum Symmetries Seminar*, Texas A&M University.

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†Canceled or hosted online due to COVID-19.

Apr **Structures in Hochschild cohomology**, *MSRI Online Seminar*, Mathematical Sciences Research Institute.

†Apr **Twisted tensor products and brackets in Hochschild cohomology**, *Graduate Student Seminar*, Mathematical Sciences Research Institute.

†Apr **Inner workings of the Hochschild cohomology of some twisted tensor products**, *Algebra and Geometry Seminar*, Iowa State University.

2019

Oct **Hermitian forms, the spectral theorems, and alternating forms**, *Student Working Seminar in Algebra and Geometry*, Texas A&M University.

Sep **An overview of duality**, *Graduate Student Seminar*, Texas A&M University.

Sep **Functors and multi-functors between semisimple categories**, *Quantum Symmetries Seminar*, Texas A&M University.

Sep **Matrices, rank, linear maps, and determinants**, *Student Working Seminar in Algebra and Geometry*, Texas A&M University.

Feb **Open and closed subschemes, open and closed immersions**, *Student Working Seminar in Algebra and Geometry*, Texas A&M University.

Feb **An introduction to relative homological algebra through group algebras**, *Graduate Student Seminar*, Texas A&M University.

2018

Sep **An approach to determinants**, *Graduate Student Seminar*, Texas A&M University.

2017

Sep **Hochschild cohomology**, *Student Working Seminar in Algebra and Geometry*, Texas A&M University.

2016

Sep **Categories, functors, and natural transformations**, *Student Working Seminar in Algebra and Geometry*, Texas A&M University.

Jul **A reading on "Algebraic coherent sheaves" by J.-P. Serre**, *M.Sc. defense*, Universite Pierre-et-Marie-Curie, France.

2015

Jul **Triality: a particularity of Spin(8)**, *B.Sc. defense*, Universitat Autonoma de Barcelona, Spain.

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2016–2018 **E. R. Keown Fellow in Mathematics**, Texas A&M University.

2015 **Fulbright Scholarship**, Fulbright Program, Spain.

2015 **X Becas de Postgrado**, Fundacion Mutua Madrileña, Spain.

2012 **JAE Intro**, Instituto de Ciencias Matematicas, Spain.
- Program: Introduction to Ramsey Theory

2010 **VII Concurs EIDEA**, Escola Hamelin-Internacional Laie, Spain.

2010 **Matricula de Honor en Bachillerato**, Universitat Autonoma de Barcelona, Spain.

2010 **Joves i Ciencia**, Imperial College London, United Kingdom.
- Program: London International Youth Science Forun (LIYSF)

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†Canceled or hosted online due to COVID-19.

2010 **Premio Excelencia UIC**, Universitat Internacional de Catalunya, Spain.

2009 **Joves i Ciencia**, Institut de Ciencies Fotoniques, Spain.
- Program: Classic and Quantum Cryptography

2008 **Joves i Ciencia**, Planes de Son, Spain.
- Program: Mathematics in Unlikely Places

Professional Service

Conference Organization

AMS Sectional Meeting, United States.
- Spring Eastern 2021: *Hopf algebras, tensor categories, and related homological methods*

Graduate Algebra Symposium, Texas.
- Fall 2020: University of Texas at Arlington
- Spring 2019: University of North Texas
- Fall 2019: Texas A&M University

Gathering in Graduate Expository Mathematics, Texas A&M University.
- Fall 2020
- Spring 2019

Seminar Organization

Quantum Symmetries Seminar, Texas A&M University.
- Fall 2020
- Fall 2019

Student Working Seminar in Algebra and Geometry, Texas A&M University.
- Fall 2020
- Spring 2020
- Fall 2019
- Spring 2019
- Fall 2018

Directed Reading Programs

University of California, Berkeley.
- Spring 2020: Mentor

Texas A&M University.
- 2020–present: Organizer
- Fall 2019: Mentor
- Spring 2019: Mentor

Student Government

AMS Chapter, Texas A&M University.
- 2020–2021: Vice-President
- 2018–2019: Vice-President

AWM Chapter Peer Mentoring Program, Texas A&M University.
- 2018–present: Mentor

Fulbright Student Association, Texas A&M University.
- 2017–2018: IT officer and Webmaster

Teaching

Texas A&M University

Instructor.
- Summer 2020: Math 663 (Algebra Qualifying Exam Preparatory Course)
- Summer 2020: Summer Educational Enrichment in Math
- Fall 2019: Math 141 (Finite Mathematics)
- Summer 2019: Summer Educational Enrichment in Math

Graduate Teaching Assistant.
- Fall 2020: Math 152 (Engineering Mathematics II)
- Spring 2019: Math 654 (Algebra II)
- Fall 2018: Math 653 (Algebra I)

Universitat Autonoma de Barcelona

Undergraduate Teaching Assistant.
- Fall 2014: Foundations of Mathematics

Private Tutor

Undegraduate algebra and calculus, high school mathematics and physics.
- 2008–2015

Outreach and Service

Panel Discussions

First Year Graduate Student Seminar, Texas A&M University.
- Fall 2020: Outreach Opportunities
- Spring 2019: Choosing an Advisor
- Fall 2017: Adjusting to Graduate School

Math Circles

Bridges to Science (Katy, TX).
- Summer 2020: Speaker

University of California, Berkeley.
- Spring 2020: Speaker

San Francisco State University.
- Spring 2020: Volunteer

Texas A&M University.
- Fall 2019: Speaker
- Spring 2019: Speaker
- 2016–present: Volunteer

Science Contests

Texas Science Olympiad, Texas A&M University.
- Spring 2019: Volunteer

Regional Science Bowl, Texas A&M University.
- Spring 2019: Moderator
- Spring 2018: Scientific Judge
- Spring 2017: Scientific Judge

Junior Science Bowl, Texas A&M University.
- Spring 2018: Moderator

Integral Bee, Texas A&M University.
- Spring 2020: Volunteer
- Spring 2018: Volunteer

Derivative Bee, Texas A&M University.
- Fall 2019: Volunteer
- Fall 2018: Volunteer
- Fall 2017: Volunteer

High School Math Contest, Texas A&M University.
- Fall 2018: Grader
- Fall 2017: Grader
- Fall 2016: Grader

Science Fairs

Math and Stat Fair, Texas A&M University.
- Spring 2017: Volunteer

1a Semana de la Ciencia de Paris, Colegio de España (Paris, France).
- Spring 2016: Volunteer

Dissabtes de les Matematiques, Universitat Autonoma de Barcelona.
- 2011–2015: Volunteer

Student Government

Graduate and Professional Student Government, Texas A&M University.
- 2019: Senator
- Spring 2017: Participant

Conferences and Workshops *(All events were fully or partially funded.)*

2021

Jan **Joint Mathematics Meetings**, *Washington, District of Columbia*.

2020

Aug **Encuentro Virtual de Algebra Homologica**, *Universidad de Buenos Aires, Universidad Nacional de Mar del Plata, Universidad Nacional del Sur*, Argentina.

Aug **Operad Pop-Up**, *MATRIX*, Australia.

[†]Aug **Quantum groups, Categorification, Knot invariants, and Soergel bimodules**, *University of Oregon*.

[†]Jul **Applied Category Theory**, *Massachusetts Institute of Technology*.

[†]Jul **Workshop on Homotopy Type Theory/Univalent Foundations**, *Oxford*, United Kingdom.

[†]Jun **Tensor Categories, Quantum Groups and Related Topics**, *University of Nottingham*, United Kingdom.

May **Cross Atlantic Representation Theory and Other Topics Online**, *University of Michigan*.

May **A Zoom Special Session on DG Methods in Commutative Algebra and Representation Theory**, *University of Utah*.

[†]May **AMS Spring Western Sectional Meeting**, *California State University, Fresno*.

[†]Apr **Graduate Student Topology and Geometry Conference**, *Indiana University Bloomington*.

[†]Apr **Underrepresented Students in Topology and Algebra Research Symposium**, *University of Iowa*.

[†]Apr **Algebra and Geometry Seminar**, *Iowa State University*.

Mar **Arithmetic Geometry is Online in Zoom, Everyone**, *University of Georgia.*

†Mar **(∞, n)-Categories, Factorization Homology, and Algebraic K-Theory**, *Mathematical Sciences Research Institute.*

†Mar **Tensor Categories and Topological Quantum Field Theories**, *Mathematical Sciences Research Institute.*

†Mar **Critical Issues in Mathematics Education 2020: Today's Mathematics, Social Justice, and Implications for Schools**, *Mathematical Sciences Research Institute.*

Mar **Southwest Local Algebra Meeting**, *Tulane University.*

Feb **Seattle Noncommutative Algebra Day**, *University of Washington.*

Feb **Introductory Workshop: Higher Categories and Categorification**, *Mathematical Sciences Research Institute.*

Feb **Connections for Women: Higher Categories and Categorification**, *Mathematical Sciences Research Institute.*

Jan **Introductory Workshop: Quantum Symmetries**, *Mathematical Sciences Research Institute.*

Jan **Connections for Women: Quantum Symmetries**, *Mathematical Sciences Research Institute.*

2019

Nov **Texas Geometry and Topology Conference**, *Texas A&M University.*

Oct **Graduate Algebra Symposium**, *Texas A&M University.*

Oct **Texas Algebraic Geometry Seminar**, *Texas A&M University.*

Jul **Ragnar's Ramifications in Algebra and Geometry Emerging Workshop**, *Fields Institute for Research in Mathematical Sciences*, Canada.

Jun **Research School on Quantum Symmetries**, *Universidad de los Andes*, Colombia.

Jun **Commutative Algebra and its Interaction with Algebraic Geometry**, *University of Notre Dame.*

Jun **Summer Research Program on Quantum Symmetries**, *Ohio State University.*

Jun **Graduate Student Conference in Algebra, Geometry, and Topology**, *Temple University.*

May **Homotopy meets Homology**, *Hamilton Mathematics Institute at Trinity College Dublin*, Ireland.

Apr **Texas-Oklahoma Representations and Automorphic Forms**, *University of North Texas.*

Mar **Graduate Student Topology and Geometry Conference**, *University of Illinois at Urbana-Champaign.*

Mar **Graduate Algebra Symposium**, *University of Oklahoma.*

Feb **Southwest Local Algebra Meeting**, *University of Texas at El Paso.*

Feb **Gathering in Graduate Expository Mathematics**, *Texas A&M University.*

Feb **Texas Algebraic Geometry Symposium**, *University of Texas at Austin.*

Jan **Frobenius Action in Commutative Algebra: Recent Developments**, *Institut de Matematica de la Universitat de Barcelona*, Spain.

Jan **Categorification in Quantum Topology and Beyond**, *Erwin Schrodinger International Institute for Mathematics and Physics*, Austria.

2018

Nov   **Texas Algebraic Geometry Seminar**, *Texas A&M University*.

Oct   **Graduate Algebra Symposium**, *University of Texas at Arlington*.

Sep   **Quantum Computation and Information Workshop**, *Texas A&M University*.

Jul   **ICM 2018 Satellite Meeting: A Pan-Hemispheric Celebration of Mathematics in Miami**, *University of Miami*.

Jun   **Workshop in Geometric Topology**, *Calvin College*.

May   **Stable Cohomology: Foundations and Applications**, *Snowbird*.

Apr   **Graduate Algebra Symposium**, *University of North Texas*.

Apr   **Texas Algebraic Geometry Symposium**, *Texas A&M University*.

Mar   **Gathering in Graduate Expository Mathematics**, *Texas A&M University*.

2017

Jun   **Research Computing Week**, *Texas A&M University*.

2016

Nov   **Texas Geometry and Topology Conference**, *Texas A&M University*.

Mar   **Seminaire Grothendieck**, *Institut des Hautes Etudes Scientifiques*, France.

2013

Jul   **6a Escuela JAE de Matematicas**, *Instituto de Ciencias Matematicas*, Spain.

2012

Jul   **5a Escuela JAE de Matematicas**, *Instituto de Ciencias Matematicas*, Spain.