

# Pablo S. Ocal

## Curriculum Vitae

Texas A&M University  
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### Employment

2021–present **Assistant Adjunct Professor**, *University of California, Los Angeles, CA.*  
Mentor: Paul Balmer

### Visiting Positions

Spring 2020 **Program Associate**, *Quantum Symmetries*, Mathematical Sciences Research Institute.  
• Mentors: Cris Negron and Chelsea Walton

### Education

2016–2021 **Ph.D., 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 Autònoma de Barcelona, Spain.*  
Advisor: Jaume Aguade Bover

2010–2015 **B.Sc., Physics**, *Universitat Autònoma 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, *J. Algebra Appl.*, 2021.  
• arXiv:2005.06660
- 1 ***Gerstenhaber brackets on Hochschild cohomology of general twisted tensor products***, with T. Karadag, D. McPhate, T. Oke, and S. Witherspoon, *J. Pure Appl. Algebra*, 2021.  
• arXiv:1909.02181

### Scholarships and Awards

2022 **Kovalevskaya Grant**, ICM Local Organizing Committee.  
International Congress of Mathematicians

2022 **AMS-NSF-Simons-ICM Travel Grant**, American Mathematical Society.  
International Congress of Mathematicians

2021 **Travel Grant**, American Mathematical Society.  
Mathematical Congress of the Americas

2021 **Virtual Graduate Student Travel Grant**, American Mathematical Society.  
Joint Mathematics Meetings

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

- 2016–2021 **Fulbright Scholarship**, Fulbright Program, Spain.
- 2015–2016 **X Becas de Postgrado**, Fundacion Mutua Madrileña, Spain.
- 2012 **JAЕ 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 Forum (LIYSF)
- 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

## Conference Talks

### 2022

- Jan ***The relative Künneth theorem in relative Hochschild cohomology***, *Joint Mathematics Meetings*, Seattle, WA.

### 2021

- †Nov ***The Relative Künneth Theorem***, *AMS Fall Southeastern Sectional Meeting*, University of South Alabama.
- †Oct ***The Relative Künneth Theorem***, *AMS Fall Western Sectional Meeting*, University of New Mexico.
- †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.
- †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.

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†Canceled or hosted online due to COVID-19.

## 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.

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## Selected Seminar Talks

## 2021

- Jul **The relative Künneth theorem**, *Building Relationships for an Inclusive and Diverse Group of Emerging Students*, University of Utah.
- May **Hochschild cohomology of general twisted tensor products**, *Seminario Moduli, Algebre, Anelli*, University of Padua, University of Verona.
- Mar **Hochschild cohomology of general twisted tensor products**, *Topology Seminar*, Bilkent University.

## 2020

- Nov **Hochschild cohomology of general twisted tensor products**, *Algebra and Combinatorics Seminar*, Texas A&M University.
- Nov **Hochschild cohomology of general twisted tensor products**, *Algebra and Algebraic Geometry Seminar*, University of Washington.
- Nov **Hochschild cohomology of general twisted tensor products**, *Algebra Seminar*, University of Texas at Arlington.
- Nov **Hochschild cohomology of general twisted tensor products**, *Algebra and Geometry Seminar*, Iowa State University.
- Nov **Hochschild cohomology of general twisted tensor products**, *Algebra Seminar*, Indiana University Bloomington.

- Oct **Hochschild cohomology of general twisted tensor products**, *Representation Theory and Related Topics Seminar*, Northeastern University.
- Oct **Hochschild cohomology of general twisted tensor products**, *Lie Theory Seminar*, University of California, Riverside.
- Oct **Hochschild cohomology of general twisted tensor products**, *Seminario de Algebra Homologica y Hierbas Afines*, Universidad de Buenos Aires, Argentina.
- Oct **Hochschild cohomology of general twisted tensor products**, *Algebra Seminar*, University of Oregon.
- Oct **Summary on Lie algebras and their representations**, *Learning Seminar on Topological Quantum Field Theories and Invariants of Low-dimensional Manifolds*, Rice University.
- Sep **Hochschild cohomology of general twisted tensor products**, *Algebra and Number Theory Seminar*, Louisiana State University.
- Sep **Hochschild cohomology of general twisted tensor products**, *Algebra and Number Theory Seminar*, Texas Tech University.
- Aug **The vector space structure of the quantized enveloping algebra**, *Quantum Symmetries Seminar*, Texas A&M University.
- Aug **Representations of the special linear Lie algebra of order two**, *Quantum Symmetries Seminar*, Texas A&M University.
- Apr **Structures in Hochschild cohomology**, *MSRI Online Seminar*, Mathematical Sciences Research Institute.
- <sup>†</sup>Apr **Inner workings of the Hochschild cohomology of some twisted tensor products**, *Algebra and Geometry Seminar*, Iowa State University.
- 2019**
- Sep **Functors and multi-functors between semisimple categories**, *Quantum Symmetries Seminar*, Texas A&M University.
- 2016**
- 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 Autònoma de Barcelona, Spain.

## Professional Service

### Conference Organization

**AMS Sectional Meeting**, United States.

- Spring Eastern 2021: *Hopf algebras, tensor categories, and related homological methods*

**Graduate Algebra Symposium**, Texas.

- Spring 2021: University of Oklahoma
- Fall 2020: University of Texas at Arlington
- Spring 2019: University of North Texas
- Fall 2019: Texas A&M University

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<sup>†</sup>Canceled or hosted online due to COVID-19.

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

- Fall 2020
- Spring 2019

Committees

**Equity, Diversity and Inclusion**, University of California, Los Angeles.

- Member: 2021-2022

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

**Math Grad Student Diversity Committee**, Texas A&M University.

- 2020–present: Co-Founder

**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

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## Teaching

University of California, Los Angeles

**Instructor.**

- Winter 2021: Math 33A (Linear Algebra and Applications)
- Fall 2021: Math 110AH (Algebra (Honors))
- Fall 2021: Math 31B (Integration and Infinite Series)

Texas A&M University

**Instructor.**

- Summer 2021: Summer Educational Enrichment in Math
- 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 Autònoma de Barcelona

### **Undergraduate Teaching Assistant.**

- Fall 2014: Foundations of Mathematics

Private Tutor

### **Undergraduate algebra and calculus, high school mathematics and physics.**

- 2008–2015

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## **Outreach and Service**

Year-long Programs

**Matching Mathematicians with Classrooms Nationwide**, American Institute of Mathematics.

- 2021-2022: MATCH Fellow

Panel Discussions and Committees

**Undergraduate Math Council Speaker Series**, University of California, Los Angeles.

- Winter 2022: Invited speaker

**Equity, Diversity and Inclusion Committee**, University of California, Los Angeles.

- Fall 2021: Faculty member

**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 2020: Speaker
- 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 Matemàtiques**, Universitat Autònoma de Barcelona.

- 2011–2015: Volunteer

#### Student Government

**Graduate and Professional Student Government**, Texas A&M University.

- 2019: Senator
- Spring 2017: Participant