

Xavier Ramos Olivé

CONTACT INFORMATION	Smith College Department of Mathematical Sciences Burton Hall 316 10 Elm Street, Northampton, MA 01063	(413) 585-3469 xramosolive@smith.edu https://www.xavieramos.com
RESEARCH INTERESTS	Geometric Analysis, Differential Geometry and Global Analysis on Manifolds— especially integral curvature assumptions and their analytic and geometric implications.	
EDUCATION	University of California, Riverside Ph.D. in Mathematics, June 2019 <ul style="list-style-type: none">• Dissertation: <i>Gradient Estimates Under Integral Curvature Conditions</i>• Advisor: Qi S. Zhang University of Barcelona B.S. in Physics, June 2014 Polytechnic University of Catalonia B.S. in Mathematics, June 2013	
ACADEMIC AFFILIATIONS	Smith College Department of Mathematical Sciences Visiting Assistant Professor, 2022 - present Worcester Polytechnic Institute Department of Mathematical Sciences Postdoctoral Scholar, 2019 - 2022	
REFEREED JOURNAL ARTICLES	X. Ramos Olivé, C. Rose, L. Wang, G. Wei, <i>Integral Ricci curvature and the mass gap of Dirichlet Laplacians on domains</i> , Math. Nachr. 296 , 8 (2023), 3559–3578, DOI: 10.1002/mana.202100523. O. Post, X. Ramos Olivé, C. Rose, <i>Quantitative Sobolev extensions and the Neumann heat kernel for integral Ricci curvature conditions</i> , J. Geom. Anal. 33 , 70 (2023), DOI: 10.1007/s12220-022-01118-4. C.C. Anderson, X. Ramos Olivé, K. Spinelli, <i>Manifolds with bounded integral curvature and no positive eigenvalue lower bounds</i> , The PUMP Journal of Undergraduate Research 4 (2021), 222–235, https://journals.calstate.edu/pump/article/view/2572 . X. Ramos Olivé, S. Seto, G. Wei and Q.S. Zhang, <i>Zhong-Yang type eigenvalue estimate with integral curvature condition</i> , Math. Z. 296 , 595–613 (2020), DOI: 10.1007/s00209-019-02448-w. X. Ramos Olivé, <i>Neumann Li-Yau gradient estimate under integral Ricci curvature bounds</i> , Proc. Amer. Math. Soc. 147 (2019), no. 1, 411–426, DOI: 10.1090/proc/14213.	
BOOKS	X. Ramos Olivé, chapter in <i>Recent Advances in the Geometry of Submanifolds and Related Areas</i> , AMS Contemporary Mathematics book series, in preparation.	

PREPRINTS	S. Seto, X. Ramos Olivé, <i>Gradient estimates of a nonlinear parabolic equation under integral Bakry-Émery Ricci condition.</i>
GRANTS AND FELLOWSHIPS	2023 Member of the <i>Mathematics Research Community on Ricci Curvatures of Graphs and Applications to Data Science</i> American Mathematical Society
	2022 <i>Red'22 Project NExT Fellow</i> Mathematical Association of America
	2012 <i>JAE intro cp Fellowship</i> Spanish National Research Council (CSIC) Institute of Mathematical Sciences (ICMAT)
AWARDS	2019 <i>Vernon A. Kramer Memorial Service Award</i> University of California, Riverside
	2019 <i>International Student Recognition Award</i> University of California, Riverside
INVITED TALKS	<i>TBD</i> , Special Session on Recent Advances in Differential Geometry, Spring Western Sectional Meeting of the AMS. (May 2024)
	<i>The Rolling R-ball condition and John domains</i> , Special Session on Recent Advances in Differential Geometry, Spring Eastern Sectional Meeting of the AMS. (April 2023)
	<i>Eigenvalue Estimates Under Integral Curvature Conditions</i> , Geometry and Topology Seminar, Syracuse University. (January 2023)
	<i>The Rolling R-Ball Condition</i> , Geometry Seminar, California State University, Fullerton. (December 2022)
	<i>Section NExT Workshop: Online collaboration tools with a focus on L^AT_EX</i> , Northeastern MAA Fall Sectional Meeting, Keene State College. (November 2022)
	<i>Shaping Music: The Role of Curvature in the Production of Sound</i> , Lunch Talk, Smith College. (October 2022)
	<i>The Fundamental Gap under integral curvature assumptions</i> , Geometry Seminar, California State University, Fullerton. (November 2021)
	<i>Shaping Music: The Role of Curvature in the Production of Sound</i> , Mathematics Colloquium, California State University, Long Beach. (October 2021)
	<i>Geometric Analysis under integral curvature conditions</i> , Seminari Informal de Matemàtiques de Barcelona (SIMBa), Barcelona Graduate School of Mathematics. (November 2020)
	<i>Eigenvalues of manifolds with integral curvature conditions</i> , Analysis and Geometry Seminar, Schmid College of Science and Technology, Chapman University. (November 2020)
	<i>Extension operators from a geometric point of view</i> , 2020 Virtual Workshop on Ricci and Scalar Curvature in honor of Misha Gromov. (September 2020)

Sharp First Eigenvalue Lower Bound Under Integral Curvature Assumptions, Geometry Seminar, Dartmouth College. (February 2020)

Eigenvalue Estimate Under Integral Assumptions on the Bakry-Émery Ricci Curvature, Special Session on Topics in Global Geometric Analysis, AMS Western Sectional Meeting, University of California, Riverside. (November 2019)

Global properties of manifolds with integral curvature conditions, Differential Geometry Seminar, Polytechnic University of Catalonia. (December 2018)

Li-Yau gradient estimate under integral Ricci curvature bounds, Differential Geometry Seminar, University of California, Santa Barbara. (June 2018)

CONFERENCES, WORKSHOPS AND SEMINARS ORGANIZED	2024	AMS Special Session on <i>Ricci Curvatures of Graphs and Applications to Data Science (an MRC session)</i> Joint Mathematics Meetings (San Francisco, CA)
	2024	<i>Mathematicians + Wikipedia - a training edit-a-thon</i> Joint Mathematics Meetings (San Francisco, CA)
	2023	<i>ChatGPT for the classroom - a brainstorming session</i> NE-COMMIT Fall Conference, Westfield State University
	2023	<i>The roles of AI and technology in the classroom</i> Project NExT Session, MAA MathFest (Tampa, FL)
	2023	<i>Assessments for alternative grading workshop</i> Project NExT Session, MAA MathFest (Tampa, FL)
	2023	<i>Mathematicians + Wikipedia - a training edit-a-thon to reduce the "Wikipedia gender gap" in the Mathematical Sciences</i> in cooperation with AWM, Joint Mathematics Meetings (Boston, MA)
	2022	<i>Online collaboration tools with a focus on L^AT_EX</i> , Section NExT workshop Northeastern MAA Fall Sectional Meeting, Keene State College.
	2019–2020	<i>Analysis and PDE Seminar</i> Worcester Polytechnic Institute
	2019	<i>Math Connections 2019 - Geometry, Representation Theory, and Category Theory</i> University of California, Riverside
	2019	<i>AMS Contributed Paper Session on Geometry</i> Joint Mathematics Meetings
	2018	<i>Math Connections 2018 - Geometry and PDEs</i> University of California, Riverside
	2017	<i>Math Connections 2017 - Algebra, Analysis and Number Theory</i> University of California, Riverside
	2016–2017	<i>Graduate Student Seminar</i> University of California, Riverside

CONFERENCE TALKS *L^AT_EX with peer and instructor feedback*, 2022 NE-COMMIT Fall Conference, Harvard University. (October 2022)

IBL in an Online Flipped Classroom Model for a Transition to Proofs Class, Inquiry Based Learning and Teaching Contributed Paper Session, 2021 MAA MathFest. (August 2021)

Zhong-Yang type eigenvalue estimate with integral curvature condition, AMS Spring Central and Western Joint Sectional Meeting. (March 2019)

Zhong-Yang eigenvalue lower bound for the Laplacian on closed manifolds with integral Ricci curvature bounds, Joint Mathematics Meetings. (January 2019)

Enhancing graduate student success through the organization of a conference, MAA Fall Southern California and Nevada Sectional Meeting. (October 2018)

Gradient estimates and integral Ricci curvature, Math Connections 2018 - Geometry and PDEs, University of California, Riverside. (May 2018)

Neumann Li-Yau gradient estimate under integral Ricci curvature bounds, Joint Mathematics Meetings. (January 2018)

POSTER
SESSIONS

Gradient estimates under integral Ricci curvature, Riverside Mathematics Workshop for Excellence and Diversity, University of California, Riverside. (October 2018)

DEPARTMENTAL
TALKS

Gradient estimates on manifolds and the Ricci curvature, Analysis and PDE Seminar, Worcester Polytechnic Institute. (November 2019)

The fundamental tone of a Riemannian manifold, Graduate Student Seminar, University of California, Riverside. (February 2019)

Zhong-Yang eigenvalue estimate under integral curvature conditions, Differential Geometry Seminar, University of California, Riverside. (December 2018)

Lagrangian and Hamiltonian mechanics, Seminar of Mathematical Physics and Dynamical Systems, University of California, Riverside. (February 2018)

Li-Yau gradient estimate under integral Ricci curvature bounds, Differential Geometry Seminar, University of California, Riverside. (February 2018)

An introduction to Geometric Mechanics, Graduate Student Seminar, University of California, Riverside. (October 2016)

Cheeger-Colding-Naber Theory, Graduate Student Seminar, University of California, Riverside. (May 2016)

The geometry of Relativity, Graduate Student Seminar, University of California, Riverside. (January 2016)

OTHER TALKS

Gray code and paths on hypercubes, UCR Undergraduate Math Club, University of California, Riverside. (January 2019)

Discovering a theorem by Erdős, UCR Undergraduate Math Club, University of California, Riverside. (February 2016)

CONFERENCES
AND WORKSHOPS
ATTENDED

ChatGPT: Moving from Perils to Potentials, MAA Virtual Program. (May 2023)

Eigenmaps, Data and Geometry Workshop 2023, Online. (May 2023)

2022 NE-COMMIT Fall Conference, Harvard University. (October 2022)

MathFest 2022, Mathematical Association of America. (August 2022)

New England Community for Mathematics Inquiry in Teaching Fall Virtual Conference, NE-COMMIT, online. (October 2021)

MathFest 2021, Mathematical Association of America, online. (August 2021)

26th Southern California Geometric Analysis Seminar, University of California, San Diego. (January 2019).

Oberwolfach Seminar: Spectral Estimates on Noncompact Manifolds and Applications to Geometry, Mathematisches Forschungsinstitut Oberwolfach. (May 2018)

25th Southern California Geometric Analysis Seminar, University of California, Irvine. (January 2018)

AMS Fall Western Sectional Meeting, University of California, Riverside. (November 2017)

Geometry and Analysis on Manifolds 2017, University of California, Santa Barbara. (April 2017)

24th Southern California Geometric Analysis Seminar, University of California, San Diego. (February 2017)

Geometric analysis on Riemannian and singular metric measure spaces, Lake Como School of Advanced Studies. (July 2016)

Graduate Student Topology and Geometry Conference, University of Indiana at Bloomington. (April 2016)

23rd Southern California Geometric Analysis Seminar, University of California, Irvine. (January 2016)

Oberwolfach Seminar: Singularity Analysis for Geometric Flows, Mathematisches Forschungsinstitut Oberwolfach. (September 2015)

10th AIMS Conference on Dynamical Systems, Differential Equations and Applications, Autonomous University of Madrid. (July 2014)

8th International Summer School on Geometry, Mechanics and Control, Institute of Mathematical Sciences (ICMAT). (July 2014)

8th International Young Researchers Workshop on Geometry, Mechanics and Control, Polytechnic University of Catalonia. (December 2013)

7th Summer School on Geometry, Mechanics and Control, Institute of Mathematical Sciences (ICMAT). (July 2013)

7th International Young Researchers Workshop on Geometry, Mechanics and Control, Institute of Mathematical Sciences (ICMAT). (December 2012)

5th JAE School of Mathematics, Institute of Mathematical Sciences (ICMAT). (July 2012)

TEACHING
EXPERIENCE

Visiting Assistant Professor at Smith College (instructor of record)

Spring 2023 Calculus I
 Spring 2023 Advanced Calculus
 Fall 2022 Topology (IBL)
 Fall 2022 Linear Algebra (Team Based Inquiry Learning)

Postdoctoral Scholar at WPI (instructor of record)

E-term 2022 Matrices and Linear Algebra I (online)
 D-term 2022 Matrices and Linear Algebra I (hybrid)
 D-term 2022 Differentiable Manifolds (online reading course)
 C-term 2022 Matrices and Linear Algebra I (hybrid)
 B-term 2021 Calculus IV (flipped classroom)
 E2-term 2021 Differential Equations (online)
 E1-term 2021 Bridge to Higher Mathematics (IBL online)
 D-term 2021 Calculus III (hybrid)
 C-term 2021 Calculus IV (hybrid, in a team)
 B-term 2020 Calculus IV (hybrid, in a team)
 A-term 2020 Calculus III (hybrid, in a team)
 E-term 2020 Calculus IV (online)
 D-term 2020 Calculus IV (online)
 D-term 2020 Differentiable Manifolds (online reading course)
 C-term 2020 Differential Geometry of Curves and Surfaces (reading course)
 B-term 2019 Calculus III
 A-term 2019 Calculus IV

Associate In at UCR (instructor of record)

Spring 2019 Introduction to College Mathematics for the Sciences
 Summer 2018 Calculus of Several Variables
 Summer 2018 PDE Qualifying Exam Preparation Seminar

Teaching Assistant at UCR (Fall 2014 - Winter 2019)

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| <input type="checkbox"/> Precalculus | <input type="checkbox"/> Calculus of Several Variables |
| <input type="checkbox"/> Intro. to College Mathematics for the Sciences | <input type="checkbox"/> Intro. to Discrete Mathematics |
| <input type="checkbox"/> Intro. to College Mathematics for Business and Social Sciences | <input type="checkbox"/> Intro. to Ordinary Differential Equations |
| <input type="checkbox"/> First Year Calculus | <input type="checkbox"/> Intermediate Analysis |
| <input type="checkbox"/> Calculus for Life Sciences | <input type="checkbox"/> Intro. to Differential Geometry |
| <input type="checkbox"/> Calculus for Business | <input type="checkbox"/> Ordinary and Partial Differential Equations |
| | <input type="checkbox"/> Intro. to Mathematical Modeling |

Other Teaching Experience

Summer 2020, WPI Undergraduate Research: *Dumbbells and integral curvature*
 2018–2019, UCR Microtutorials in Mathematics
 Winter 2018, UCR Math Emporium
 Spring 2017, UCR Undergraduate Research: *Counting with symmetries*

PROFESSIONAL
DEVELOPMENT

AMS Mathematics Research Community on Ricci Curvature of Graphs and Applications to Data Science. (2023-2024)

Project NExT Fellow professional development program at MathFest and JMM. (Red'22, 2022-2023)

Suicide Prevention Discussion, Riverside Trauma Center. (February 2022)

Recognizing and Responding to Student Distress Program, Student Development & Counseling Center, Worcester Polytechnic Institute. (January 2022)

Online Pedagogy Workshop, Academic Technology Center – Technology for Teaching & Learning, Worcester Polytechnic Institute. (June 2020)

SERVICE TO PROFESSION	2023 - 2026	Social Media Committee member of the AWM
	2023–present	Referee for <i>Revista de la Real Academia de Ciencias Exactas, Físicas y Naturales. Serie A. Matemáticas</i>
	2023–present	Referee for <i>Journal of Mathematical Analysis and Applications</i>
	2023–present	Referee for <i>Involve: A Journal of Mathematics</i>
	2022	Coordinator of fact checking volunteers for the AWM Playing Cards
	2022	Judge at <i>MAA Undergraduate Student Poster Session</i> , MathFest 2022
	2022	Biography writer for the AWM Playing Cards project
	2022	Data collector for the AWM Playing Cards project
	2021	Judge at <i>MAA Student Paper Sessions</i> (online), MathFest 2021
	2020	Biography writer for the AWM Playing Cards project
	2020	Reviewer of AWM Playing Cards nominees
	2019–present	Referee for <i>Proc. Amer. Math. Soc.</i>
	2018–present	Reviewer of <i>zbMATH</i>
	2018	Judge at <i>MAA Undergraduate Student Poster Session</i> , JMM 2018
	2016-2017	President of the AMS Student Chapter at UCR
DEPARTMENTAL SERVICE	2022	Faculty coordinator of the Smith College Math Club/AWM Chapter
	2022	Pizza and Putnam Problem Solving Sessions coorganizer at Smith College
	2022	Spanish-Language Panel for Accepted International Students at WPI
	2019	Student Representative on Faculty Candidate Panel at UCR
	2017–2019	President of the Mathematics Graduate Student Association at UCR
OUTREACH	2022	Volunteer at <i>4th Sonia Kovalevsky Day</i> (in person) AWM Student Chapter, Worcester Polytechnic Institute
	2021–2022	Editor and member of the <i>WPI Wikipedia Editing Community</i>
	2021	Volunteer at <i>3rd Sonia Kovalevsky Day</i> (online) AWM Student Chapter, Worcester Polytechnic Institute
	2021	Editor at <i>WPI Women's Heritage Month 2021 Wiki Edit-a-thon</i> AWM Student Chapter and Gordon Library, Worcester Polytechnic Institute.
	2020	Coorganizer of screening of <i>Secrets of the Surface</i> (online) Polytechnic University of Catalonia
	2020	Volunteer at <i>2nd Sonia Kovalevsky Day</i> (online) AWM Student Chapter, Worcester Polytechnic Institute
	2019	Grader at <i>32nd Annual WPI Invitational Mathematics Meet</i> Worcester Polytechnic Institute
	2017	Proctor in <i>American Mathematics Competition (AMC-8)</i> University of California, Riverstide.
2012	Museum Guide at the exhibition <i>Imaginary Barcelona</i> Royal Spanish Mathematical Society and Catalan Mathematical Society	
PROFESSIONAL MEMBERSHIPS		American Mathematical Society

Mathematical Association of America
Association for Women in Mathematics
New England Community for Mathematics Inquiry in Teaching

LANGUAGES

Catalan (native)
Spanish (native)
English (excellent)
French (good)
German (beginner)
Mandarin Chinese (beginner)