Juan Francisco Romero Acosta

CONTACT INFORMATION

Mathematical Sciences Institute
Hanna Neumann Building 145
The Australian National University
Canberra ACT 2601, Australia

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RESEARCH INTERESTS

Geometric Measure Theory; Harmonic Analysis.

APPOINTMENTS

Postdoctoral Fellow   August 2023 - present
The Australian National University

EDUCATION

Virginia Tech, Blacksburg, VA.   August 2017 - May 2023
Ph.D. in Mathematics   Awarded May 2023
M.S. in Mathematics   Awarded December 2019
Advisor: Eyvindur Ari Palsson.
San Marcos University, Lima, Peru.   March 2010 - December 2015
B.S. in Mathematics

PUBLICATIONS

1. R. Ascoli, L. Betti, J. Cheigh, A. Iosevich, R. Jeong, X. Liu, B. McDonald, W. Milgrim, S. J. Miller, F. Romero Acosta, and S. Velazquez Iannuzzelli, *A VC-dimension of hyperplanes over finite fields,*, **Graphs and Combinatorics** (2025), vol. 41, article number 47. arXiv:2307.10425 .

2. E.A. Palsson and F. Romero Acosta, *A Mattila-Sjölin Theorem for Simplices in Low Dimensions*, **Mathematische Annalen** (2024), Volume 391, pg 1123–1146. arXiv:2208.07198 .

3. R. Ascoli, L. Betti, J. Cheigh, A. Iosevich, X. Liu, B. McDonald, W. Milgrim, S.J. Miller, F. Romero Acosta and S. Velazquez Iannuzzelli, *VC-Dimension and Distance Chains in $\mathbb{F}_q^n$*, **Korean J. Math** (2024), no. 1, 43–57. arXiv:2210.03058 .

4. E.A. Palsson and F. Romero Acosta, *A Mattila-Sjölin Theorem for Triangles*, **Journal of Functional Analysis** 284 (2023), no. 6, 109814. arXiv:2109.13429.

5. R. Ascoli, L. Betti, J. Lehmann Duke, X. Liu, W. Milgrim, S.J. Miller, E.A. Palsson, F. Romero Acosta and S. Velazquez Iannuzzelli, *Distinct Angles and Angle Chains in Three Dimensions*, **Discrete Mathematics & Theorical Computer Science**, **25** (2023), no. 1, Paper No. 2, 19pp. arXiv:2208.13284 .

GRANTS

AMS Grad Student Travel Grant,   Fall 2022 - Spring 2023
1,300 $ available for travel to be used within the last year of the Ph.D. program.

WORKSHOPS ATTENDED

ANU Futures Workshop: Recent Progress of Harmonic Analysis in General Relativity and Quantum Information.   2025
Mathematical Sciences Institute
November 17 - 22 in Canberra ACT, Australia.

On the Interface of Geometric Measure Theory and Harmonic Analysis.   2024
Banff International Research Station
June 9 - 14 in Banff, Alberta, Canada.

Harmonic Analytic Connections.   2024
MATRIX Research Program
May 27 - 31 in Creswick, Victoria, Australia.

SEMINAR TALKS	*Abundance of triangles in thin fractal sets*, **Analysis & PDE Seminar**, Australian National University, September 18, 2024. *Triangles in thin fractal sets*, **Barcelona Analysis Seminar**, Universitat de Barcelona, February 1, 2024. *A Mattila-Sjolin theorem for k-simplices in lower dimensions*, **Analysis & Math Physics Seminar**, Virginia Tech, October 19, 2022. *A Mattila-Sjölin theorem for triangles*, **Analysis & Math Physics Seminar**, Virginia Tech, March 16, 2022.
CONFERENCE TALKS	*A Mattila-Sjölin theorem for triangles in dimension 3 and higher*, **Spring Central Sectional Meeting** University of Cincinnati, Cincinnati OH, April 15, 2023. *A Mattila-Sjölin theorem for triangles in dimension 3 and higher*, **Harmonic Analysis and Fractal Sets 2023 - HAFS 2023** Ohio State University, Columbus OH, March 25, 2023. *A Mattila-Sjölin theorem for triangles*, **AMS Special Session on Distance Problems in Continuous, Discrete and Finite Field Settings** Joint Mathematics Meetting, Boston MA, January 7, 2023.
POSTERS	*On the Next Generation Matrix*, **VII International Workshop on Applied Mathematics**, Jorge Basadre Grohmann University, Tacna, Peru, October 2015.
CONFERENCE ATTENDED	**The Young Mathematicians Conference (YMC)**, Ohio State University, Columbus OH, August 2022. **Canadian Mathematical Society Winter Meeting**, Online, December 2021. **Virtual Harmonic Analysis**, Online, Spring 2020. **The Second Mid-Atlantic Analysis Meeting**, Online, October 2020. **Mathematical Physics at the Crossings**, in honor of the 65th Birthday of Dr. George Hagedorn, Virginia Tech, Blacksburg VA, May 2019. **XII International Seminar on Bio-mathematics (SEMBIOMAT)**, Organized by the School of Mathematics of Peru, University of Lima, Lima, Peru, August 2016. **Mathematical and Stochastic Models on Epidemiology Applied** , Organized by the Ministry of Health, University of Lima, Lima, Peru, November 2015. **Computer Science Seminar**, San Marcos University, Lima, Peru, October 2015. **VII International Workshop on Applied Mathematics**, Jorge Basadre Grohmann University, Tacna, Peru, October 2015.

XII International Seminar on Optimization and Related Areas,
Instituto de Matemática y Ciencias Affines - IMCA, Lima, Peru, Ocbober 2015.

MENTORING	**SMALL Summer REU**	Williams College
	June - August 2022	Williamstown, MA
	Graduate assistant.	

OUTREACH	**Society for Advancement of Chicanos/Hispanics and Native Americans in Science (SACNAS) Student Chapter**	Virginia Tech
	Spring 2023	Blacksburg, VA
	Founding Vice-President	
	Multicultural and multidisciplinary STEM diversity organization that connects students and faculty to career resources and networking	

Virginia Tech Math Circle   Virginia Tech
October 2019 / September 2022   Blacksburg, VA
Prepared activities and led sessions for
elementary and middle school students

**Harmonic Analysis People's
Presentation on YouTube (HAPPY)**   [HAPPY Chanel]
December 2022
Recorded presentation
A Mattila-Sjölin theorem for triangles

TEACHING EXPERIENCE	**Lecturer**	Mathematical Science Institute, ANU
	July 2024 - present	Canberra, ACT
	Math 1113: Calculus	Semester 2 - 2024
	Math 3320/6212: Advanced Studies Extension - Introduction to Geometric Measure Theory	Semester 1 - 2025
	Math 1113: Calculus	Semester 2 - 2025

Graduate Teaching Assistant   Virginia Tech
Summer 2018 - Spring 2023   Blacksburg, VA
Teaching Assistant - Math 1225: Calculus I.   Summer 2018
Lecturer - Math 1225: Calculus I.   Fall 2018
Lecturer - Math 1226: Calculus II.   Spring 2019
Lecturer - Math 2214: Int. to Differential Equations.   Summer 2019
Lecturer - Math 2214: Int. to Differential Equations.   Fall 2019
Lecturer - Math 2214: Int. to Differential Equations.   Spring 2020
Lecturer - Math 2214: Int. to Differential Equations.   Fall 2020
Lecturer - Math 2214: Int. to Differential Equations.   Spring 2021
Lecturer - Math 2214: Int. to Differential Equations.   Fall 2021
Lecturer - Math 1226: Calculus II.   Spring 2022
Lecturer - Math 1226: Calculus II.   Fall 2022

Tutor   Math Emporium, Virginia Tech
Fall 2017 - Spring 2018   Blacksburg, VA
Elementary Calculus Tutor.

Tutor   Universidad Peruana de Ciencias
                                                                         Aplicadas, UPC
March 2017 - July 2017   Lima, Peru
Elementary Calculus Tutor.

	Teacher	TRILCE Educational Organization
	September 2014 - May 2017	Lima, Peru
	Arithmetic and Geometry teacher.	

	Teacher	Pamer Educational Corporation
	July 2013 - December 2014	Lima, Peru
	Geometry teacher.	

MEMBERSHIP   Member of the American Mathematical Society   August 2017 - 2023

AWARD   **2015 Outstanding Academic performance**   December 2015
San Marcos University, Lima, Peru.