Melody A.H. Molander

melodymolander@ucsb.edu
melodymolander.com

EDUCATION	University of California, Santa Barbara **Ph.D. in Mathematics (pursuing)**	September 2019 - present
	University of Oklahoma **M.A. in Mathematics**	August 2014 - May 2017
	University of California, Davis **B.S. in Mathematics**	September 2010 - June 2014

PAPERS

2. "Skein Theory of Affine ADE Subfactor Planar Algebras" (in preparation)

1. "A Determinant Formula of the Jones Polynomial for a Family of Braids" with D. Asaner, S. Kumar, A. Pease, and A. Poudel (in preparation)

RESEARCH INTERESTS

Quantum algebra, low-dimensional topology, operator algebras, tensor categories, diagrammatic algebras, subfactors, structure and classification of C*-algebras, knot theory, quantum groups

CURRENT RESEARCH PROJECT

"Nuclear Dimension of Crossed Products by Hilbert Bimodules over Commutative C*-algebras", Project leaders: Marzieh Forough and Karen Strung, Members: Ja A Jeong, Preeti Luthra, Melody Molander, and Zahra Hasanpour-Yakhdani

AWARDS

National Science Foundation Travel Grant -$1350	2023
Operator Algebra Mentor Network Grant - $500	2023
Decolvenaere Research Accelerator Award - UCSB Graduate Division - $8000	2023
Individualized Professional Skills (IPS) Grant - UC Santa Barbara - $1000	2023
Department of Mathematics Graduate Fellowship - University of Oklahoma - $3000	2015
Richard V. Andree Memorial Scholarship - University of Oklahoma - $2000	2015
Yueh-Jing Lin Fund - UC Davis - $2500	2013

TALKS

14. *"Skein Theory for Index 4 Subfactor Planar Algebras"* Southeastern Lie Theory Workshop: Quantum Structures in Lie Theory, University of Virginia	March 2024
13. *"Using Diagrams to Describe Quantum Symmetries of Subfactors"* Women in Mathematics in Southern California Symposium, Pomona College	February 2024
12. *"Skein Theory of Index 4 Subfactor Planar Algebras"* Joint Mathematics Meetings, "Knots, Skein Modules, and Categorification" Special Session	January 2024
11. *"Skein Theory for Affine ADE Subfactor Planar Algebras"* Claremont Topology Seminar, Claremont McKenna College	November 2023
10. *"Skein Theory for Affine ADE Subfactor Planar Algebras"* Twinned Conference on C*-Algebras and Tensor Categories, Fields Institute (in person) and ICMS (streamed live)	November 2023
9. *"Skein Theory of Subfactor Planar Algebras"* Young Mathematicians in C*-Algebras, KU Leuven	August 2023
8. *"Skein Theory for Index 4 Subfactor Planar Algebras"* Great Plains Operator Theory Symposium, The Ohio State University	May 2023
7. *"Diagrammatic Presentations of Affine Type A Subfactor Planar Algebras of Index 4"*	May 2023

	AMS Spring Western Sectional, "Algebraic Structures in Knot Theory" Session, Fresno State	
	6. *"Skein Theory for Affine ADE Subfactor Planar Algebras"*	May 2023
	Moab Topology Conference, Utah State University - Moab	
	5. *"Skein Theory of Affine Type A Subfactor Planar Algebras"*	March 2023
	Redbud Topology Conference, University of Oklahoma	
	4. *"Diagrammatic Presentations of Index 4 Planar Algebras"*	March 2023
	Underrepresented Students in Topology and Algebra Symposium, University of Washington	
	3. *"Skein Theory for Affine ADE Subfactor Planar Algebras"* Quantum Groups Seminar (Zoom), Université de Lille & University of Oslo	March 2023
	2. *"Diagrammatic Presentations of Index 4 Subfactor Planar Algebras"*	December 2022
	Tech Topology Conference, Georgia Tech	
	1. *"Diagrammatic Presentations of Affine Type A Subfactor Planar Algebras of Index 4"*	July 2022
	Topology Students Workshop, Georgia Tech	
POSTERS	3. *"Diagrammatic Presentations of Affine Type A Subfactor Planar Algebras of Index 4"*	June 2022
	BRIDGES Conference, Poster Session, University of Utah	
	2. *"Comparing Voting Systems Using Kemeny Rankings"*	April 2014
	Undergraduate Research Conference, Student Poster Session - UC Davis	
	1. *"Comparing Voting Systems Using Kemeny Rankings"*	February 2014
	MAA Golden Section Meeting, Student Poster Session - Sonoma State University	
TEACHING	**Lead TA - UC Santa Barbara**	Fall 2022 - Spring 2023
	Provided professional development and TA training to new math department TAs	
	Teaching Assistant - UC Santa Barbara	Fall 2019 - present
	MATH 108AB - Introduction to Linear Algebra	
	MATH 8 - Transition to Higher Mathematics	
	MATH 6A - Vector Calculus I	
	MATH 6B - Vector Calculus II	
	MATH 34B - Calculus for Social and Life Sciences	
	Associate Instructor - UC Santa Barbara	Summer 2020 &
	MATH 6A - Vector Calculus I	Summer 2021
	MATH 4A - Linear Algebra with Applications	
	Adjunct Mathematics Professor - Cosumnes River College	Spring 2018 - Spring 2019
	MATH 30 - Pre-Algebra	
	STAT 300 - Introduction to Statistics and Probability	
	MATH 20 - Arithmetic	
	Teaching Assistant - University of Oklahoma	Fall 2015 - Spring 2017
	MATH 1743 - Business Calculus I	
	MATH 1914 - Calculus 1 (Fast Track)	

MATH 2924 - Calculus 2 (Fast Track)

MATH 1823 - Calculus 1

Instructor of Record - University of Oklahoma   Fall 2014 - Summer 2015 &

MATH 1823 - Calculus 1   Summer 2016

MATH 1503 - College Algebra

WORKSHOPS	**Quantum Invariants and Low-dimensional Topology**	August 2023
	American Institute of Mathematics (AIM)	
	Women in Operator Algebras 3	June 2023
	Banff International Research Station (BIRS)	

MENTORSHIP	**UCSB Directed Reading Program Mentor**	December 2019 - June 2023
	REU Graduate Mentor, UCSB	June 2022 - August 2022
	Women in STEM Mentor, UCSB	September 2019 - June 2022

SERVICE	**AWM Student Chapter at UCSB, Secretary**	June 2023-present
	Directed Reading Program at UCSB Co-Organizer	December 2020 - July 2023
	Graduate Quantum Algebra and Topology Seminar Co-Organizer, UCSB	July 2023 - January 2024
	AWM Chapter at UCSB Founder and President	August 2022 - June 2023
	Quantum Algebra and Topology Seminar Co-Organizer, UCSB	September 2021 - June 2022

ORGANIZATION MEMBERSHIPS	Operator Algebra Mentor Network - Mentee	February 2023 - present