Melody A.H. Molander

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

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

Awarded to graduate students to attend the Young Mathematicians in C*-Algebras (YMC*A) conference at KU Leuven.

Operator Algebra Mentor Network Grant - $ 500 — 2023

Awarded to junior researchers who are underrepresented or in minority within mathematics due to gender for conference travel.

Decolvenaere Research Accelerator Award - UC Santa Barbara Graduate Division - $8000 — 2023

Awarded to a top-ranked student with substantial research expenses in recognition of their outstanding research and academic work.

Individualized Professional Skills (IPS) Grant - UC Santa Barbara - $1000 — 2023

Awarded to graduate students to take greater agency in their own career path by funding exploration of a range of professional development opportunities across a variety of career and skill interests.

Department of Mathematics Graduate Fellowship - University of Oklahoma - $3000 — 2015

Awarded to graduate students who make exceptional contributions to the mathematics department.

Richard V. Andree Memorial Scholarship - University of Oklahoma - $2000 — 2015

Awarded to graduate students who have shown academic excellence, department and university citizenship, and activity in support of Pi Mu Epsilon.

Yueh-Jing Lin Fund - UC Davis - $2500 — 2013

Awarded to high-achieving graduate or undergraduate students.

INVITED TALKS

4. *"Skein Theory of Index 4 Subfactor Planar Algebras"* Joint Mathematics Meetings, "Knots, Skein Modules, and Categorification" Special Session — January 2024

	3. *"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
	2. *"Skein Theory for Affine ADE Subfactor Planar Algebras"* Claremont Topology Seminar, Claremont McKenna College	November 2023
	1. *"Skein Theory for Affine ADE Subfactor Planar Algebras"* Quantum Groups Seminar (Zoom), Université de Lille & University of Oslo	March 2022

PRESENTATIONS	11. *"Skein Theory of Subfactor Planar Algebras"*	August 2023
	Young Mathematicians in C*-Algebras, KU Leuven	
	10. *"Skein Theory for Index 4 Subfactor Planar Algebras"*	May 2023
	Great Plains Operator Theory Symposium, The Ohio State University	
	9. *"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	
	8. *"Skein Theory for Affine ADE Subfactor Planar Algebras"*	May 2023
	Moab Topology Conference, Utah State University - Moab	
	7. *"Skein Theory of Affine Type A Subfactor Planar Algebras"*	March 2023
	Redbud Topology Conference, University of Oklahoma	
	6. *"Diagrammatic Presentations of Index 4 Planar Algebras"*	March 2023
	Underrepresented Students in Topology and Algebra Symposium, University of Washington	
	5. *"Diagrammatic Presentations of Index 4 Subfactor Planar Algebras"*	December 2022
	Tech Topology Conference, Georgia Tech	
	4. *"Diagrammatic Presentations of Affine Type A Subfactor Planar Algebras of Index 4"*	July 2022
	Topology Students Workshop, Georgia Tech	
	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 mathematics 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