

MATEA SANTIAGO

The University of Arizona
Tucson, AZ 85721

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EDUCATION

Ph.D., Applied Mathematics July 2021
University of California, Merced
Advisor: Prof. Shilpa Khatri

B.S., Applied Mathematics May 2015
Sonoma State University

RESEARCH EXPERIENCE

University of Arizona Sept 2021 to present
Postdoctoral Fellow

- Computational fluid dynamics and fluid-structure interactions
- Experimental biofluids

University of California, Merced May 2016 to August 2021
Graduate Student Researcher

- Computational fluid dynamics and fluid-structure interactions
- Developing numerical methods to solve partial differential equations on moving boundaries

Lawrence Berkeley National Laboratory May to July 2018 & June to July 2019
Summer Research Intern

- Worked in CCSE group on the open-source software AMReX
- Contributed numerical method for chemical reaction occurring on fluid interface

Sonoma State University Jan to May 2015
McNair Scholar

- Created a compartmental ordinary differential equation to model the effect of low dose Cyclophosphamide on the immune system

AWARDS

Association for Women in Mathematics-SIAM Poster Prize July 2021
Graduate Dean's Dissertation Fellowship May to Aug 2021
NSF Research and Training Grant Graduate Student Award Aug 2020 to May 2021

McNair Scholar Jan to Mat 2015

PUBLICATIONS

M. Santiago, N. Battista, L. A. Miller, S. Khatri, "Concentration dynamics incorporated into the library IB2d, a two-dimensional implementation of the immersed boundary method". Submitted.

M. Santiago, K. Mitchell and S. Khatri, "A numerical method for modeling photosynthesis of symbiotic algae on pulsing soft corals". In review.

PRESENTATIONS

Poster: *Pulsing and Photosynthesis: Numerical Simulations of Soft Corals*. 2021 SIAM Annual Meeting. Virtual. July 19, 2021

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- Talk: *Soft Corals: Pulsing, Mixing and Photosynthesis*. 2021 Society of Mathematical Biology Annual Meeting. Virtual. June 15, 2021
- Talk: *Quantifying Mixing Around Pulsing Soft Corals*. 73rd Annual APS Division of Fluid Dynamics Meeting. Virtual. Nov 24, 2020
- Talk: *Chemical Interactions around Pulsing Soft Corals*. 72nd Annual APS Division of Fluid Dynamics Meeting. Seattle, Washington. Nov 24, 2019
- Poster: *Modeling the Chemistry and Hydrodynamics of Micro-Swimmers*. SIAM CSE 2019. Spokane, Washington. Partial funding through the Broader Engagement Program through the Sustainable Horizons Institute Feb 27, 2019
- Poster: *Modeling Chemical Concentrations Around Pulsing Soft Corals*. Microscale Ocean Biophysics. Whistler, Canada. Jan 12, 2019
- Poster: *Numerical Simulations of Pulsing Soft Corals*. Yosemite Fluids Meeting. Yosemite National Park. Sept 15, 2018
- Talk: *Simulations of Pulsing Soft Corals*. Sonoma State Math Colloquium. Sonoma State University. Rohnert Park, California. April 18, 2017

TEACHING EXPERIENCE

- Completed “*Evidence-based Teaching Practices Workshop*” sponsored by the Center for Engaged Teaching and Learning University of California, Merced Spring 2021
- Instructor of Record*
- Math 21: Calculus I for Physical Sciences and Engineering Fall 2019
- Teaching Assistant*
- Math 125: Intermediate Differential Equations Fall 2017
 - Math 24: Linear Algebra and Differential Equations Fall 2016 and 2015
 - Math 23: Vector Calculus Spring 2016

LEADERSHIP AND SERVICE

- Nebraska Conference for Undergraduate Women in Mathematics Jan 2020
Session Chair and Panelist
- University of California, Merced Sept 2017 to June 2021
Graduate Peer Mentor
- Mathematical Biology Research Experience for Undergraduates (REU) June to July 2016
Mentor

AFFILIATIONS

- Women in STEM (W-STEM), University of California, Merced Chapter 2018
Treasurer, Member
- Society for Industrial and Applied Mathematics (SIAM) 2015 to present
Member

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American Physical Society (APS)
Member

2018 to present

SKILLS

PROGRAMMING: MATLAB, FORTRAN, C++, Python, R

SOFTWARE: Linux, Vim, Git, LaTeX, VisIt, ParaView