

# **UC Santa Cruz**

## **Graduate Research Symposium 2017**

### **Title**

Thirteenth Annual Graduate Research Symposium, Program, May 12, 2017

### **Permalink**

<https://escholarship.org/uc/item/95d7s7k8>

### **Author**

A Division, of Graduate Studies:

### **Publication Date**

2017-05-11



## **Welcome to the 13th Annual Graduate Research Symposium!**

UC Santa Cruz is proud to showcase the superb research of our graduate students and to celebrate their academic achievements of the past year. UC Santa Cruz's annual Graduate Research Symposium gives us the opportunity to:

- Highlight outstanding graduate research across the spectrum of disciplines on campus
- Recognize graduate research being conducted in a wide range of programs and settings
- Celebrate the diversity and innovations of our graduate community
- Provide our graduate students with this opportunity to learn about the research of their colleagues and to encounter research findings in fields of inquiry related to their own
- Promote interdisciplinary research conversations among our graduate students

The Division of Graduate Studies is honored to be able to host this annual event in McHenry Library. Please use the adjacent map to find the oral and poster presentations listed in this program.

### **Event Judging**

A panel of judges will score presenters on their ability to convey information in a meaningful manner to a non-expert audience, as well as the relevance/importance of their research and/or project to those in and outside of their field.

### **Award Reception**

Join us for the Award Reception immediately following the judging on the foyer terrace and south lawn, where light refreshments by UCSC Catering and entertainment by the Mellow Martians Jazz Duo will be provided. Awards for the best presentations in each academic division will be granted: gift certificates to UCSC's Bay Tree Bookstore in the amount of \$100, sponsored by the academic deans. Two awards recognizing outstanding presentations in any discipline will also be awarded: 1) a \$250 cash Graduate Dean's award and 2) a \$500 cash award for the Chancellor's Graduate Research Prize.

Tyrus Miller  
Vice Provost and Dean of Graduate Studies

# Judges

David Abercia

Assistant Vice Provost and Chief of Staff  
Undergraduate Education  
Chancellor's Office

Steve Campbell

Assistant Vice Chancellor  
Office of Research  
Silicon Valley Initiatives

Barbara Canfield

Foundation Trustee  
Community Volunteer

Stephanie Casher

Department Manager  
Literature Department  
Humanities Division

Julian Fernald

Director  
Institutional Research, Assessment & Policy  
Studies

Andrea Hesse

Academic Divisional Computing Director  
Humanities Divisional Liaison  
Humanities Division

Zia Isola

Director  
CBSE Research Mentoring Institute (RMI)  
Biomolecular Science & Engineering  
Baskin School of Engineering

Janet A. Jones

Graduate Program Coordinator  
Chemistry & Biochemistry  
Physical & Biological Sciences Division

Gwen Jourdonnais

Director  
Constituent Engagement  
University Relations

Maria Kerschen

Assistant Dean  
Physical & Biological Sciences Division

Loren Kinczel

Foundation Trustee  
Managing Director  
Scharf Investments

Matthew Mednick

Executive Director, Academic Senate  
Chancellor's Office

Siddharth Narayan

Postdoctoral Scholar

Lucy Rojas

Interim Dean of Students  
Campus Life  
Student Success Office

Vikram Sahai

Foundation Trustee  
Technology Adviser

Heather Shearer

Chair, Writing Program  
Teaching Professor, Crown College  
Humanities Division

Anna Sher

Assistant Director for Assessment  
Institutional Research, Assessment & Policy  
Studies

Tedd Siegel

Assistant Vice Chancellor  
Office of Research

Barbara Silverthorne

Director  
Career Center

David Sonnenberg

Assistant Dean  
Planning & Resources Management  
Social Sciences Division

Steven Stein

Assistant Vice Chancellor  
Human Resources

Shirley Truong

Principal Analyst  
Institutional Research, Assessment & Policy  
Studies

Tess Weathers

Postdoctoral Scholar

Melissa Whatley

Assistant Director  
Government and Community Relations  
University Relations

Aaron Zachmeier

Instructional Designer  
ITS-Learning Technologies

John Zott

CFO  
Carlson Wireless

# Live Oral Presentations

Presentation Room 1  
Library 2320

1:30 pm

**Jay Arms**, *Arts, Music*

Experimentalism and American Gamelan: Gamelan Son of Lion and the Internationalization of Indonesian Arts

**Tatiane Santa Rosa**, *Arts, Visual Studies*

The Eternal Encounter: Indigenous Visual Culture and the Legacies of the Military Dictatorship in Brazil

**Jed Pizarro-Guevara**, *Humanities, Linguistics*

Out of the lab and into the field: Spoken word recognition in Dabaw Bisaya

**Nickolas Knightly**, *Humanities, Philosophy*

Revisoning Philosophy: Discovering Practical Wisdom in a Time of Crisis

**Julián Rodríguez**, *Social Sciences, Sociology*

Coming Out to Play: Exploring Online Communications and the Gay and Lesbian Presence in Video Game Culture

2:30 pm

**Verena Friedl**, *Baskin School of Engineering, Biomolecular Engineering & Bioinformatics*

Discovering treatment indications for pediatric cancer patients using a probabilistic attribute recommender

**Sam Mansfield**, *Baskin School of Engineering, Computer Engineering*

TerrainLOS: Realistically Testing for Forest Fires

**Sharon Rabinovich**, *Baskin School of Engineering, Computer Engineering*

Multi-UAV Path Coordination Based on Uncertainty Estimation

**Suraiya Jetha**, *Social Sciences, Anthropology*

The Center for Emerging Worlds: the Global South

**April Reber**, *Social Sciences, Anthropology*

Rightist, right-wing, extremist movements in Germany: New frames for old discourses?

# Live Oral Presentations

Presentation Room 2  
Library 2353

1:30 pm

**Jorge Jiménez**, *Physical & Biological Sciences, Chemistry & Biochemistry*  
Stable and highly water-soluble silver complexes derived from 2,6-(pyridyl)iminodiaadamantanes for bacterial eradication

**Tianyu Liu**, *Physical & Biological Sciences, Chemistry & Biochemistry*  
Lessons Learned by Designing and Instructing an Undergraduate Chemistry Course

**Michael Roders**, *Physical & Biological Sciences, Chemistry & Biochemistry*  
Characterization of Charge Transport Networks in Polymer/Non-fullerene Solar Cells

**Mauricio Rojas-Andrade**, *Physical and Biological Sciences, Chemistry & Biochemistry*  
Controlled Phototoxicity of Graphene Oxide Quantum Dots Through Chemical Functionalization

**Jeff Swan**, *Physical & Biological Sciences, Chemistry & Biochemistry*  
Mechanisms of Output Signaling from the Cyanobacterial Circadian Clock

2:30 pm

**Helen Holmlund**, *Physical & Biological Sciences, Ecology & Evolutionary Biology*  
Ferns living on the edge: Differential traits for survival during California's drought

**Sabrina Shirazi**, *Physical & Biological Sciences, Ecology & Evolutionary Biology*  
A Tale of Two Mice: A Trans-Holocene Record of *Peromyscus nesodytes* and *P. maniculatus* at Daisy Cave, San Miguel Island, California

**Stephanie Webb**, *Social Sciences, Environmental Studies*  
Food Systems of Eastern Africa: Political Economics and Consumption of Cultured Nile Tilapia (*Oreochromis Niloticus*)

**Saugher Nojan**, *Social Sciences, Education*  
Afghan-Americans Negotiating Racialized Logics In and Out of Schools

**Mecaila Smith**, *Social Sciences, Education*  
Thinking about Learning in College

# Live Oral Presentations

Presentation Room 3  
Library 2359

1:30 pm

**Carver Bierson**, *Physical and Biological Sciences, Earth Sciences*  
Forming Icy Worlds: Things get hot

**Carolyn Branecky**, *Physical and Biological Sciences, Earth Sciences*  
Observations below an Antarctic ice shelf reveal slow melting

**Daniel Killam**, *Physical and Biological Sciences, Earth Sciences*  
Tracking Giant Clam Growth Through Time as a Measure of Coral Reef Health

**Sarah Neuhaus**, *Physical and Biological Sciences, Earth Sciences*  
Quantifying iceberg melt in a temperate fjord

**Allison Pfeiffer**, *Physical and Biological Sciences, Earth Sciences*  
Flying green lasers and a giant selfie-stick: seeing the river bed in the context of the river valley

2:30 pm

**Cassidy Berk**, *Baskin School of Engineering, Electrical Engineering*  
Two-Pump Dynamics in Exchange Coupled Magnetic Multilayers

**Gopikrishnan Gopalakrishnan Meena**, *Baskin School of Engineering, Electrical Engineering*  
MMI waveguide-based multispectral detection of nucleic acids for analysis of drug-resistant bacteria

**José Armando Oviedo**, *Baskin School of Engineering, Electrical Engineering*  
Fundamentals of Fair Power Allocation in Non-Orthogonal Multiple Access for 5G Wireless Systems

**Md. Mahmudur Rahman**, *Baskin School of Engineering, Electrical Engineering*  
Single Particle Fluorescence Analysis on Demand on Electro-Optofluidic Chip with Gated Particle Delivery

**Alexandra Stambaugh**, *Baskin School of Engineering, Electrical Engineering*  
Spectral and Spatial Multiplex Detection of Six Different Influenza Panel Viruses on a Multi-mode Interference Waveguide Platform

# Poster Presentations

*Alphabetical by division/school, program,  
last name*

## Arts

### *Visual Studies*

#### **Margaret Wander**

Co-Presenters: **LuLing Osofsky, Alina Ivette Fernández, Megan Martenyi, Alex Ullman**  
Archiving the Public University: From the Local to the Global

## Baskin School of Engineering

### *Biomolecular Engineering & Bioinformatics*

#### **Charles Cole**

Characterizing CD27CD38 positive B cell populations through single-cell RNA sequencing

### *Computer Engineering*

#### **Megan Boivin**

Force Feedback Control and Navigation of a Flexible Needle with Anatomical Uncertainties

#### **Daniel Eliahu**

A Sensor System for the Objective Quantification and Classification of Tremors

#### **Hyejin Han**

Hybrid Control Algorithm for Object Grasping Using Multiple Agents

#### **Ehsan Hemmati**

Name-Based Content Routing in ICN Using Diffusing Computations

#### **Jordan Liss**

High Precision Sunphotometer using Wide Dynamic Range (WDR) Camera Tracking

#### **Alexey Munishkin**

Stochastic Optimal Control Navigation with the Avoidance of Unsafe Configurations

#### **Vijay Muthukumaran**

Obstacle Detection and Avoidance Using Radar and Robust Hybrid Controller

## *Computer Science*

#### **Gbolahan Adesoye**

Visualization of Internal Human Body Parts on Mobile Devices

#### **Jo Mazeika**

Solusforge: Controlling the Generation of the 3D models with Spatial Relation Graphs

## *Electrical Engineering*

#### **Juan Díaz**

Co-presenter: **David Fryauf**  
Study of thin film oxidation kinetics using a combination of simulations and advanced characterization

#### **Luke Hibbard-Lubow**

Fabrication and Characterization of Two-Material Nanomagnetic Arrays

#### **Mike Jaris**

Ultrafast Dynamics of a Single Nanomagnet Coupled to Surface Acoustic Waves

#### **Renée Sully**

Size and Ligand Effects on Optoelectronic and Structural Properties of Germanium Quantum Dots

## *Scientific Computation & Applied Mathematics*

#### **Michael Lavell**

Pursuing accurate solutions of slowly moving shocks

#### **Steven Reeves**

GPU Accelerated Simulation of Shallow Water Waves Including the Effects from Source Terms

# Poster Presentations

*Alphabetical by division/school, program,  
last name*

## **Baskin School of Engineering**

*Statistics & Applied Mathematics*

### **Harleigh Marsh**

Energy Constrained Shortest-Time  
Maneuvers For Reaction Wheel Satellites

### **Sara Nasab**

New inertia-driven instabilities in particle-  
laden flows

## **Humanities**

*History*

### **Xiaofei Gao**

Maritime Manchuria, 1905-1999

### **Muiris MacGiollabhui**

Sons of Exile: An Atlantic History of the  
United Irishmen, 1795-1830

### **Wilson Miu**

Becoming a Better Man: Masculinity and  
Domesticity in Republican China, 1925-1937

### **Stephanie Montgomery**

Ignorant Women, Violent Men: Spousal  
Murder in 1930s Tianjin

### **Nicole VanderMeer**

“A Word to the Commercially Wise”: Mark  
Twain, the Hawaiian Landscape, and the  
Narrative Mapping of Imperial Desire in  
American Print Culture, 1866-1908

### **Samantha Williams**

“That was our home, and it needs to be  
remembered”: Erasing and Reclaiming the  
History of the Stewart Indian School

*History of Consciousness*

### **Adrian Drummond-Cole**

The Highway and the City of God

### **Lindsay Weinberg**

From Mass Culture to Personalization

*Linguistics*

### **Karen Duek**

Meaning flexibility: the view from containers

### **Jake Vincent**

Where’s your head at? Deriving head-  
internal word order in a mentalistic theory of  
grammar

## **Physical & Biological Sciences**

*Chemistry & Biochemistry*

### **Sarah Lindley**

Optimizing Photothermal Therapy of Oral  
Cancer with Hollow Gold Nanospheres

### **Roger Volden**

DSCAM Isoforms in Single Drosophila  
Neurons

### **Bin Yao**

Co-Presenter: **Jing Zhang**  
Flexible Metal Oxide Nanopaper for High-  
Performance Energy Storage Devices

*Earth Sciences*

### **Sarah Beganskas**

Carbon-rich amendments stimulate nitrate  
removal in pilot infiltration studies

### **Jack Conrad**

Preliminary Distribution and Statistics of  
“Bacilli” in the Southern Region of Sputnik  
Planitia, Pluto

*Ecology & Evolutionary Biology*

### **Liam Zarri**

Machine Learning for Ecology: Automated  
Invertebrate Monitoring on Large Rivers



# Poster Presentations

*Alphabetical by program and last name*

## Physical & Biological Sciences

*Microbiology & Environmental  
Toxicology*

### **Gisele Miglioranza Rizzi**

Lead Concentrations Within the Condor  
Skeleton: Advancing Biomarkers of Lead  
Exposure History and Poisoning

*Molecular, Cell, & Developmental  
Biology*

### **Jolene Draper**

Tracking mRNA isoform fate during  
neurodifferentiation

*Physics*

### **Michael Saccone**

Neural Network Reduction via Clustering  
Analysis

*Science Communication*

### **Devika Garg**

Communicating Precision Medicine to  
the Public

## Social Sciences

*Anthropology*

### **Chester Liwosz**

Canyons, Cosmology, and Coyote  
Calls: Acoustics and experimental  
ethnoarchaeology in two California desert  
rock art landscapes

*Environmental Studies*

### **Hamutahl Cohen**

Urbanization influences bee-microbe  
interactions

### **Monika Egerer**

Co-Presenter: **Hamutahl Cohen**  
Biodiversity Conservation and Ecosystem  
Service Provision through Urban Food  
Cultivation

*Psychology*

### **Elizabeth Goldman**

Five-Month-Olds Detect Changes with  
Contextual Support

### **Madeleine Kerrick**

Co-Presenters: **Lina Anderson, Claire Taylor,  
Hollyn Toomey**  
Diapers & Degree Completion:  
Understanding the Needs of Students with  
Dependent Children

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# Division of Graduate Studies

Tyrus Miller, Vice Provost and Dean  
Sue Carter, Associate Dean  
Jim Moore, Assistant Dean  
Jessica Fiske Bailey, Special Assistant  
Judy Glass, Reporting Analyst  
Veronica Larkin, Administrative Assistant  
Marissa Maciel, Graduate Admissions and  
International Students

Michelle Montemayor, Assistant  
Administrative Analyst  
Rachel Neuman, Graduate Student  
Commons/Café Ivéta Building Manager  
Sonya Newlyn, Administrative Assistant  
Barbara Smee, Executive Assistant to Dean  
Kris West, Director, Graduate Student  
Services