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

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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

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
Revisioning 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

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

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

Arts

VisualStudies

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 Mazelka
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

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

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
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

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

Division of Graduate Studies

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Jim Moore, Assistant Dean
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Judy Glass, Reporting Analyst
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