

UC SAN DIEGO

29<sup>TH</sup> ANNUAL

UNDERGRADUATE

RESEARCH

CONFERENCE 2016

APRIL 23  
THE FACULTY CLUB

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## **29<sup>TH</sup> ANNUAL UC SAN DIEGO UNDERGRADUATE RESEARCH CONFERENCE (URC)**

April 23, 2016

UC San Diego's Undergraduate Research Conference supports the engagement of undergraduate students in scholarly research. Academic Enrichment Programs (AEP), a division of Student Affairs, coordinates the URC with support from the Office of Research Affairs. AEP has an overarching goal of encouraging, and supporting, undergraduate students in the pursuit of academic advancement and success in their post baccalaureate endeavors. The URC is the only campus-wide recognition of undergraduate research and encourages increased opportunities for creativity and the intellectual recognition of undergraduate students. Participation in the URC is by nomination only; a faculty member must judge a student's work to be outstanding.

Nominated students who wish to participate are required to register for the conference. This year 167 professors nominated more than 270 students based on their exceptional research. It is the highest attended URC, with 224 students presenting research during 30 different panels. Panels run concurrently during morning and afternoon sessions and are occurring in the Faculty Club, Peterson, and Solis Halls. Each panel consists of a maximum of eight presentations and between five and eleven undergraduates. Some students have conducted research in collaboration, thus there are several groups.

The conference is a student panel format, guided by a faculty moderator. Individual presenters receive 15-minutes to discuss their research and group presenters receive 20-minutes. Both individuals and groups receive 5-minutes for questions and answers. After all presentations are complete, there is additional time for group discussion. When students are not on a panel, they may attend the panel of their choice as an audience member. The URC allows students to discuss their research with faculty and one another. Each student will receive an electronic certificate to commemorate their experience.

The URC is possible because of support from the Vice Chancellor of Student Affairs, Dr. Juan Gonzalez and Vice Chancellor of the Office of Research Affairs, Dr. Sandra Brown. Biological and Physical Science Panels were created by AEP staff members, Dr. Sophia Tsai and Dr. Thomas Brown. Interim conference coordinator, Nekose Wills, created all other panels. The URC would not be possible without the entire AEP staff and student workers. AEP gives a special thanks to Ms. Julia Engstrom at the Faculty Club.





**Saturday, April 23, 2016**

8:00 a.m. **Registration** • Faculty Club Lobby  
Continental Breakfast • Courtyard

8:30 a.m. **Welcoming Remarks** • Faculty Club Dining Room

- ★ Dr. David Artis, Dean of Undergraduate Research Initiatives
- ★ Dr. Sandra Brown, Vice Chancellor of Research Affairs
- ★ Dr. Jeff Orgera, Assistant Vice Chancellor of Student Affairs & Student Retention and Success
- ★ Amanda Roth, Library Research Prize

9:00 a.m. **Morning Panels**

11:45 a.m. **Lunch** • Faculty Club Courtyard

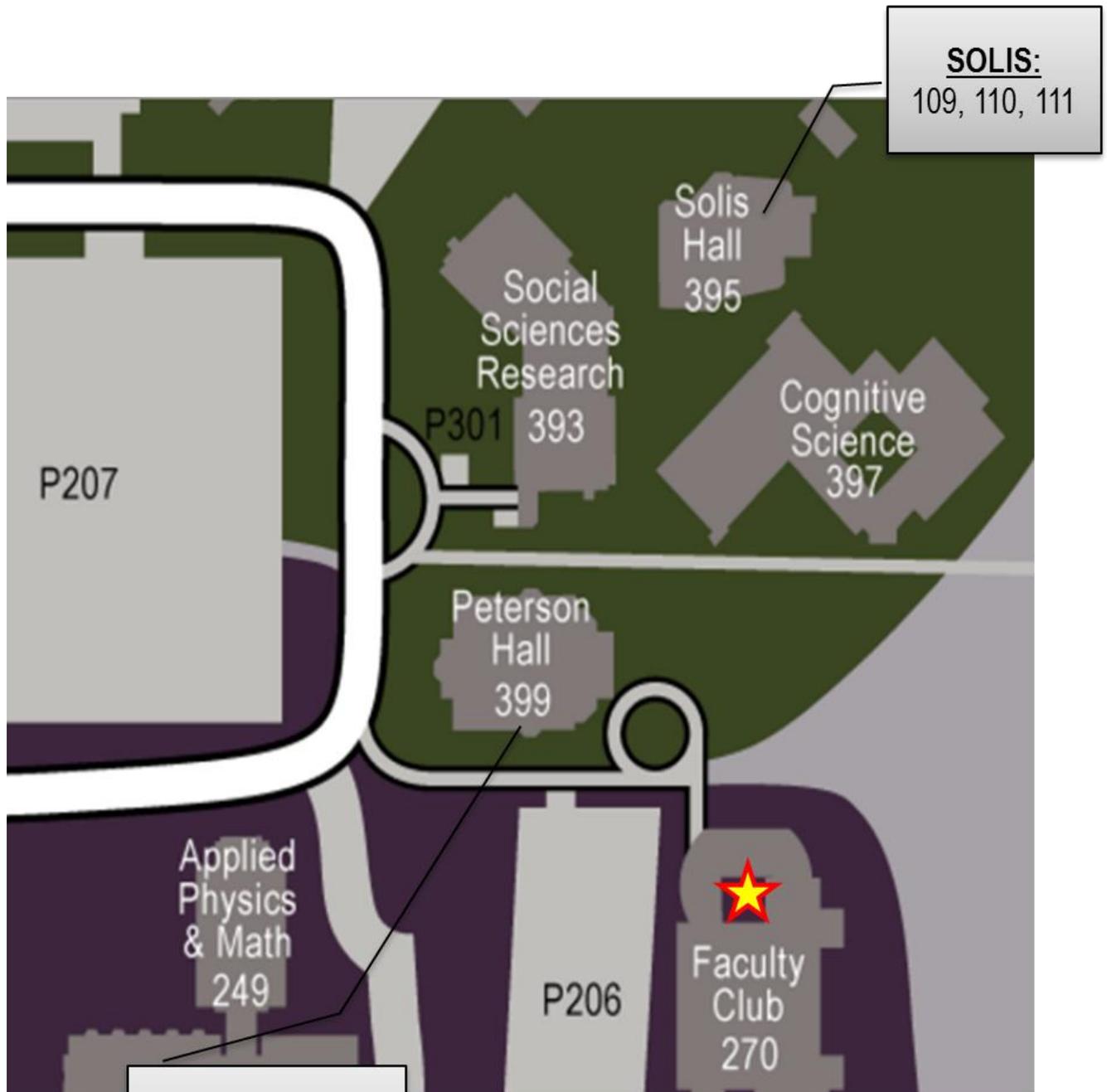
1:00 p.m. **Afternoon Panels**

3:45 p.m. **Closing Remarks** • Faculty Club Dining Room

- ★ Dr. David Artis, Dean of Undergraduate Research Initiatives
- ★ Angela Zou, Undergraduate Research Journal
- ★ Group Photograph

4:00 p.m. **Conference End**

## URC Room Locations



**PETERSON:**  
102, 103, 104

	<b>Time</b>	<b>Panel</b>	<b>Room</b>
1	Morning	Technology for Improved Health Outcomes & Brain Computer Interface	Faculty Club, Atkinson Pavilion
2	Morning	Toxicology	Faculty Club, Dining Area
3	Morning	The Role of Race & Ethnicity in Academic Achievement	Faculty Club, Library
4	Morning	Cell Biology, Immunology, & Signaling	Faculty Club, Room 1
5	Morning	Stem Cells	Faculty Club, Room 2
6	Morning	Chemistry & Biochemistry	Faculty Club, Room 3
7	Morning	Cancer	Faculty Club, Room 4
8	Morning	A Historical Glance at Identity & Imperialism / Philosophy of Time	Faculty Club, Room 5
9	Morning	Engineering & Materials Science	Faculty Club, Room 6
10	Morning	Neuroscience & Neurobiology (AM)	Peterson 102
11	Morning	The Influence of Asian Cultural Background	Peterson 103
12	Morning	Psychology & Behavior	Peterson 104
13	Morning	Impact of Gender & Sexuality	Solis 109
14	Morning	Marine Biology & Ecology	Solis 110
15	Morning	Brian Processing	Solis 111
16	Afternoon	Visual Art / Art History / Film	Faculty Club, Atkinson Pavilion
17	Afternoon	Community, Social, & Economic Justice	Faculty Club, Dining Area
18	Afternoon	Community Health	Faculty Club, Library
19	Afternoon	Animal Behavior	Faculty Club, Room 1
20	Afternoon	Physics & Space Science	Faculty Club, Room 2
21	Afternoon	Protein Folding & Interactions	Faculty Club, Room 3
22	Afternoon	Computer Science & Electrical Engineering	Faculty Club, Room 4
23	Afternoon	Cardiac Studies	Faculty Club, Room 5
24	Afternoon	Earth Science & Oceanography	Faculty Club, Room 6
25	Afternoon	Neuroscience & Neurobiology (PM)	Peterson 102
26	Afternoon	Genes & Genomics	Peterson 103
27	Afternoon	Data Management / Critical Pedagogy	Peterson 104
28	Afternoon	Economics & Econometrics / Urban Planning	Solis 109
29	Afternoon	Engineering & Robotics	Solis 110
30	Afternoon	Psychiatry & Public Health	Solis 111

**Please note:** Panels without moderators did not have a moderator at the time of printing.

PANEL 1

**Technology for Improved Health Outcomes & Brain Computer Interface**

Morning ★ Faculty Club, Atkinson Pavilion

Moderator ★ Professor Jamie Pineda, Cognitive Science

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**Alexander Schperberg**, ROOSEVELT COLLEGE

MoBI-Box: A Next Generation Mobile Brain-Body Imaging Platform

Nominated by Professor Tzyy-Ping Jung, Swartz Center for Computational Neuroscience

**Quynh Nguyen**, WARREN COLLEGE

EEG-based biofeedback system for stress reduction

Nominated by Professor Tzyy-Ping Jung, Swartz Center for Computational Neuroscience

**Liz Izhikevich**, WARREN COLLEGE

Quantifying the variability of human brain oscillations

Nominated by Professor Bradley Voytek, Cognitive Science

**Akash Patel**, WARREN COLLEGE

AxonTracer: A Novel ImageJ Plugin for Automated Quantification of Axon Regeneration in Spinal Cord Tissue

Nominated by Professor Mark Tuszynski, Nueroscience

**Wen Zhang**, MUIR COLLEGE

Predicting and monitoring response to cognitive training in community psychosis patients

Nominated by Professor Gregory Light, Psychiatry

**Yeon Lee**, MUIR COLLEGE

**Nicholas Dudeck**, ROOSEVELT COLLEGE

**Zinong Yang**, SIXTH COLLEGE

Gamma Synchrony Training in Schizophrenia

Nominated by Professor Jaime Pineda, Cognitive Science

**Michael Widdowson**, MUIR COLLEGE

**Nicolette Castro**, WARREN COLLEGE

Attachment Styles and their Relation to RSA and Mu Suppression

Nominated by Professor Jaime Pineda, Cognitive Science

**Simon Haxby**, SIXTH COLLEGE

Large-scale spatial correspondence analysis of human brain gene expression and cognitive function

Nominated by Professor Brad Voytek, Cognitive Science



PANEL 2

**Toxicology**

Morning ★ Faculty Club, Dining Area

Moderator ★ Professor Marianna Alperin, Reproductive Medicine

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**Mugdha Joshi**, REVELLE COLLEGE

Influence of Dietary Lard Intake on the Progression of Cardiomyopathy and Survival in a Murine Diet Induced Obesity Model

Nominated by Professor Hemal Patel, Biology

**Avinaash Korrapati**, MUIR COLLEGE

DNA Methylation of Tumor Suppressors in Human Epithelial Cells treated with E-cig Vapor

Nominated by Professor Jessica Wang-Rodriguez, Pathology

**Angela Zou**, MARSHALL COLLEGE

Electronic cigarettes induce DNA strand breaks and cell death independently of nicotine in cell lines

Nominated by Professor Weg Ongkeko, Surgery

**Zachary Yong**, MUIR COLLEGE

To vape or not to vape, that is the question

Nominated by Professor Laura Crotty Alexander, Pulmonary

**Steven Vitorino**, REVELLE COLLEGE

E-Cigarette Exposure Can Increase Oxidative Metabolism in Murine Skeletal Muscle Fibers

Nominated by Professor Ellen Breen, Medicine



PANEL 3

**The Role of Race & Ethnicity in Academic Achievement**

Morning ★ Faculty Club, Library

Moderator ★ Professor Luz Chung, Education Studies

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**Paige Turner**, ROOSEVELT COLLEGE

**Esmeralda Izquierdo-Ortiz**, MUIR COLLEGE

Interrelationship Between Family Demographics, Parent Beliefs, Home Practices, and School Readiness

Nominated by Professor Alison Wishard Guerra, Education Studies

**Katie Rios**, ROOSEVELT COLLEGE

The Gender Gap Between Latino and Latina Students in High School Graduation Rates

Nominated by Professor Elaine Denny, Political Science

**Yu Chen**, SIXTH COLLEGE

Asian American or Pacific Islander? Examining the Relationship between Filipino Students' Racial-ethnic Identification and Academic Achievement

Nominated by Professor Alison Wishard Guerra, Education Studies

**Joana Granados**, ROOSEVELT COLLEGE

Student Voices: Latinx Students in a Continuation High School

Nominated by Professor Caren Holtzman, Education Studies

**Brenda Torres**, MUIR COLLEGE

Understanding Trauma in Urban Schools: Analyzing High School Counselors' Experiences and Challenges

Nominated by Professor Isaac Martin, Sociology

**Jose Burciaga**, SIXTH COLLEGE

Examining social networks as a way to increase minority students enrollment in college

Nominated by Professor Luz Chung, Education Studies

**Wenyi Zhang**, MARSHALL COLLEGE

Knowing Native Language's Effect on Child-UG Interaction

Nominated by Professor Alison Wishard Guerra, Education Studies



PANEL 4

**Cell Biology, Immunology, & Signaling**

Morning ★ Faculty Club, Room 1

Moderator ★ Professor Sucheta Vaingankar, Medicine

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**Curtis Sera**, WARREN COLLEGE

Cholera and Montezuma's Revenge: What flies are telling us about toxins of the GI tract  
Nominated by Professor Ethan Bier, Cell & Developmental Biology

**Eileen Lim**, REVELLE COLLEGE

Usefulness of a novel enteroid-derived monolayers model in diarrhea caused by  
Salmonella infection  
Nominated by Professor Soumita Das, Pathology

**Fatimata Sanogo**, REVELLE COLLEGE

Dissecting Tertiary Lymphoid Tissues in Pancreatic Islets of Autoimmune Diabetes  
Nominated by Professor Wenxian Fu, Pediatric Diabetes Research Center

**Hrishi Venkatesh**, MUIR COLLEGE

Effect of Hyper-IL6 on humoral response to protein immunization with NP-OVA  
Nominated by Professor Elina Zuniga, Biological Sciences

**Stephanie Wong**, MUIR COLLEGE

Sex differences in Toll-like receptor regulation of arthritic pain in mice  
Nominated by Professor Maripat Corr, Medicine

**Michael Kenner**, WARREN COLLEGE

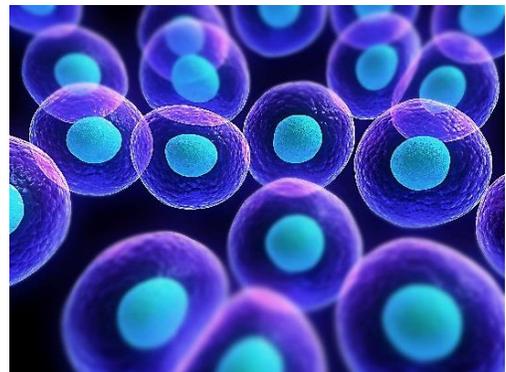
RACPP to monitor acute arthritis in the K/BxN and CIA mouse models  
Nominated by Professor Maripat Corr, Medicine, Rheumatology, Allergy & Immunology

**Ying Lin**, MUIR COLLEGE

Investigating the function of galactosaminoglycans in vasculogenesis and acute  
inflammatory response  
Nominated by Professor Jeffrey Esko, Cellular and Molecular Medicine

**Sara Hakim**, REVELLE COLLEGE

The Effect of PHLPP2 Removal in Mice on Cell  
Survival in the Brain  
Nominated by Professor Nicole Purcell,  
Pharmacology, UCSD School of Medicine



PANEL 5

## Stem Cells

Morning ★ Faculty Club, Room 2

Moderator ★ Professor Ivan Garcia-Bassets, Medicine

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**Alyssa Vukceвич**, MUIR COLLEGE

Role of Notch Signaling Pathway in Hematopoietic Stem Cell Development

Nominated by Professor Karl Willert, Cellular & Molecular Medicine

**Robert She**, REVELLE COLLEGE

Telomere Dysfunction in Progenitor Neurons: Bad Memories with No Ends

Nominated by Professor Eros Lazzerini Denchi, Molecular & Experimental Medicine

**Julian Alcantar**, REVELLE COLLEGE

The Role of Invadopodia in Neural Crest Cell Migration

Nominated by Professor Miguel Santiago-Medina, Pharmacology

**Anirudha Harihara**, WARREN COLLEGE

Evaluating the effect of extracellular matrix (ECM) on mouse trophoblast stem and progenitor cell proliferation

Nominated by Professor David Natale, Reproductive Medicine

**Karthik Mysore**, ROOSEVELT COLLEGE

Functional significance of neural progenitor cells (NPCs) in the hippocampal dentate gyrus in emotional memory deficits produced by chronic ethanol experience in female rats

Nominated by Professor Chitra Mandyam, Skaggs Pharmaceutical Sciences



PANEL 6

## **Chemistry & Biochemistry**

Morning ★ Faculty Club, Room 3

Moderator ★ Professor Robina Shaheen, Chemistry & Biochemistry

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**Justin Laughlin**, WARREN COLLEGE

Shear stress mediated NO production in endothelial cells

Nominated by Professor Padmini Rangamani, Mechanical & Aerospace Engineering

**Darlene Nguyen**, MARSHALL COLLEGE

Investigation of the Unique Post-Assembly Line Maturation Process of the Didemnin Anti-cancer Agents

Nominated by Professor Bradley Moore, Skaggs Pharmaceutical Sciences

**Aishwarya Venkatramani**, REVELLE COLLEGE

Homology Modeling and MD simulation of Plasmodium falciparum GGPPS

Nominated by Professor Andrew McCammon, Chemistry & Biochemistry

**Deborah Gardner**, SIXTH COLLEGE

Examining Isotopic Fractionation in Photoprocesses

Nominated by Professor Mark Thiemens, Chemistry & Biochemistry

**Robert Clark**, ROOSEVELT COLLEGE

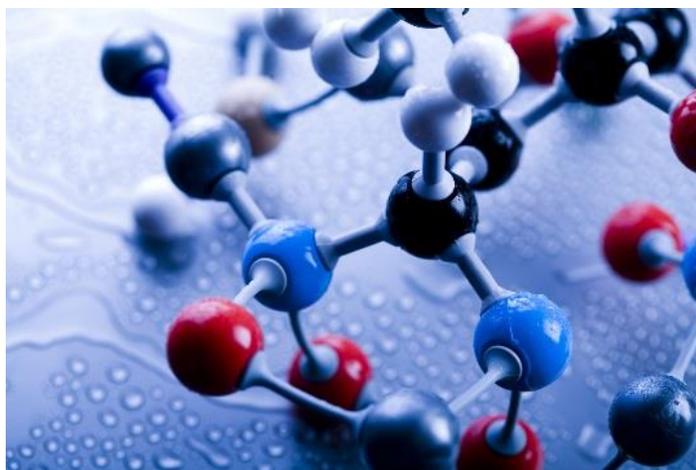
Purification, Exciton Coupling and Structural Analysis of Carotenoid Dimers

Nominated by Professor Michael Tauber, Chemistry & Biochemistry

**Victoria Winslow**, WARREN COLLEGE

Investigation of pyrrole natural product biosynthesis

Nominated by Professor Michael Burkart, Chemistry & Biochemistry



PANEL 7

**Cancer**

Morning ★ Faculty Club, Room 4

Moderator ★ Professor Elaine Tanaka, Surgery

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**Ayse Sahan**, MARSHALL COLLEGE

The potential role of DNA damage and repair by NEIL2 in bacteria associated cancer  
Nominated by Professor Soumita Das, Pathology

**Aswini Krishnan**, WARREN COLLEGE

Dysregulation of non-coding RNAs in HPV-related Head and Neck Squamous Cell Carcinoma  
Nominated by Professor Weg Ongkeko, Surgery

**Treysi Vargas Ramos**, WARREN COLLEGE

Metformin Mediated Genomic Remodeling of Head and Neck Squamous Cell Carcinoma  
Nominated by Professor Jessica Wang-Rodriguez, Pathology

**Pinxue Li**, REVELLE COLLEGE

Alcohol-dysregulated Long Non-coding RNAs in Hepatocellular Carcinoma  
Nominated by Professor Jessica Wang-Rodriguez, Pathology & Laboratory Medicine

**Josolyn Chan**, WARREN COLLEGE

Bystander Effects of Ionization Radiation  
Nominated by Professor Jean Wang, Medicine

**Cameron Martino**, REVELLE COLLEGE

The Role of the Microbiome of the Colon In a Cancerous State Induced by Nonhuman Sialic Acid  
Nominated by Professor Karsten Zengler, Pediatrics

**Julian D'Angelo**, MUIR COLLEGE

Epigenetic Changes in Pregnancy Associated Breast Cancer  
Nominated by Professor Olivier Harismendy, Pediatrics

**Thien Nguyen**, MUIR COLLEGE

TMZ-induced microRNA degradation upregulates DNA repair  
Nominated by Professor Clark Chen, Neurosurgery



PANEL 8

**A Historical Glance at Identity & Imperialism / Philosophy of Time**

Morning ★ Faculty Club, Room 5

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**Daniel Rodriguez**, ROOSEVELT COLLEGE

Understanding Populism and Anti-Imperialism in the Early Paraguayan State

Nominated by Professor Matthew Vitz, History

**Hounong Li**, ROOSEVELT COLLEGE

Li Song's Fall from Grace: A Short Biography

Nominated by Professor Sarah Schneewind, History

**Luke Mitchell**, MUIR COLLEGE

The Crescent and the Eagle

Nominated by Professor Mark Hanna, History

**Maria Sebas**, ROOSEVELT COLLEGE

Defensive Developmentalism in the Middle East During the Long Nineteenth Century

Nominated by Professor Hasan Kayali, History

**Matthew Rooney**, MARSHALL COLLEGE

The British Campaign in Mesopotamia

Nominated by Professor Hasan Kayali, History

**Michael Hertz**, WARREN COLLEGE

Making Sense of Temporal Passage

Nominated by Professor Craig Callender, Philosophy



PANEL 9

**Engineering & Materials Science**

Morning ★ Faculty Club, Room 6

Moderator ★ Professor Jerry Jung, Mechanical & Aerospace Engineering

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**Jeffrey Chen**, WARREN COLLEGE

Piezoelectric Nanoparticle Composite For Energy Generation

Nominated by Professor Donald Sirbuly, Nanoengineering

**Steven Wu**, MARSHALL COLLEGE

Stretchable Lithium-Ion Battery

Nominated by Professor Sheng Xu, Nanoengineering

**Melisa Averina**, MUIR COLLEGE

**Mengyi Liao**, MUIR COLLEGE

Molecular modeling of Cas9-guideRNA interactions

Nominated by Professor Gaurav Arya, Nanoengineering

**Rachel Oweyung**, MUIR COLLEGE

Resistive Pressure Sensors Using Stretchable Conductive Polymers and Graphene-Nanoparticle Composites

Nominated by Professor Darren Lipomi, Nanoengineering

**Mickey Finn**, WARREN COLLEGE

Mechanical Stability of Roll-to-Roll Printed Solar Cells under Repeated Bending and Torsion

Nominated by Professor Darren Lipomi, Nanoengineering

**Ved Vakharia**, MUIR COLLEGE

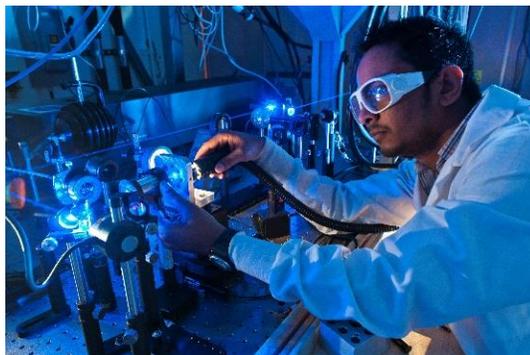
Size Optimization of YAG:Pr Nanoparticles Produced by Sol-Gel Synthesis for Biomedical Applications

Nominated by Professor Olivia Graeve, Mechanical & Aerospace Engineering

**Phuong Truong**, MUIR COLLEGE

Development of an Optical-Based Intraocular Pressure Sensor

Nominated by Professor Frank Talke, Mechanical & Aerospace Engineering



PANEL 10  
**Neuroscience & Neurobiology [AM]**  
Morning ★ Peterson 102

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**Xavier Orain**, REVELLE COLLEGE

Neurotrophic Growth Factor and Neuropathic Pain  
Nominated by Professor Chengbiao Wu, Neuroscience

**Robert Mena**, MARSHALL COLLEGE

Cloning and Expressing Membrane Associated Green Fluorescent Protein for Axon Tracing  
Nominated by Professor Binhai Zheng, Neuroscience

**Joon Kim**, ROOSEVELT COLLEGE

Phenotypic Characterization of Inducible Nogo Deletion in Axonal Sprouting and Functional Recovery after Spinal Cord Injury in Mice  
Nominated by Professor Binhai Zheng, Neuroscience

**Mallorie Nguyen**, WARREN COLLEGE

LZK (Leucine Zipper Kinase) Promotes Axon Growth of Mammalian Neurons  
Nominated by Professor Binhai Zheng, Neuroscience

**Huanqiu Zhang**, ROOSEVELT COLLEGE

Actin cytoskeletal reorganization during early, reversible cellular stress induced by intense activation of NMDA receptors  
Nominated by Professor Shelley Halpain, Biological Sciences

**Philip Canete**, MUIR COLLEGE

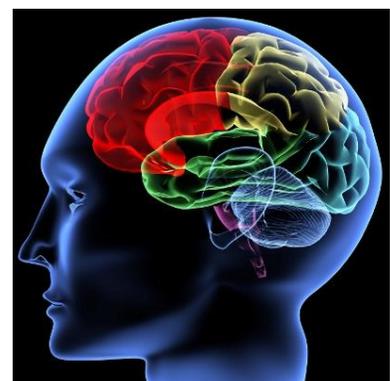
Development of a High-Content Axon Regeneration Screening Assay  
Nominated by Professor Mark Tuszynski, Neuroscience

**Nathalie Djaja**, MARSHALL COLLEGE

Experience-dependent changes in NPAS4 driven BDNF isoform localization  
Nominated by Professor Brenda Bloodgood, Neurobiology

**Kyle Jackson**, REVELLE COLLEGE

Exercise-Induced Neurotransmitter Switching in the Adult Midbrain  
Nominated by Professor Nicholas Spitzer, Neurobiology



## The Influence of Asian Cultural Background

Morning ★ Peterson 103

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**Qiyao Zheng**, REVELLE COLLEGE

The Influence of Family Background on Students

Nominated by Professor Eli Berman, Economics

**Can Huang**, MARSHALL COLLEGE

What makes you happy? Is it money?

Nominated by Professor Eli Berman, Economics

**Diane Yoong**, MARSHALL COLLEGE

Asian Americans: Race, Morality, and Politics

Nominated by Professor Nicholas Christenfeld, Psychology

**Janette Lee**, MARSHALL COLLEGE

Western Privilege in South Korea: A Critical Analysis of EatYourKimchi

Nominated by Professor Layoung Shin, History, Korean Studies

**Timothy Hwang**, MARSHALL COLLEGE

Effect of Asian Cultural Backgrounds on Social Imitation in Children

Nominated by Professor Leslie Carver, Psychology

**Shunichi Ito**, ROOSEVELT COLLEGE

Reimagining the Japanese Koseki: The creation of "legitimate" and "illegitimate" families of Japan through the Japanese family registry

Nominated by Professor Christena Turner, Sociology

**Marina McGough**, ROOSEVELT COLLEGE

Making a Tradition: Perceptions of Authenticity and Heritage in Japanese Taiko Drumming

Nominated by Professor Christena Turner, Sociology

**Alexis Reed**, WARREN COLLEGE

Female Anime Characters Demonstrate the Shifting Attitudes Towards Women in Japan

Nominated by Professor Christena Turner, Sociology





PANEL 13  
**Impact of Gender & Sexuality**  
Morning ★ Solis 109

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**Emma Jackson**, REVELLE COLLEGE

**Serena Dunham**, REVELLE COLLEGE

Into the Light: A Qualitative Examination of Girl Education and Child Marriage in Ethiopia and India

Nominated by Professor Anita Raj, Medicine

**Meghan Yap**, MUIR COLLEGE

Analysis of Campus Sexual Assault Policies and Services At UC San Diego

Nominated by Professor Anita Raj, Global Public Health

**Sofia Beltran**, MARSHALL COLLEGE

The Intersectionality of LGBTQ Youth Of Color and Their Accessibility and Navigation to Resources

Nominated by Professor Leslie Lewis, Urban Studies & Planning

**Jenny Woo**, REVELLE COLLEGE

Meanings of Masturbation: A Comparison of Male and Female College Students' Attitudes About Self-Pleasure

Nominated by Professor Kevin Lewis, Sociology

**Erica Rios**, REVELLE COLLEGE

Politics of 'Coming Out'

Nominated by Professor Yen Espiritu, Ethnic Studies

**Curie Kim**, SIXTH COLLEGE

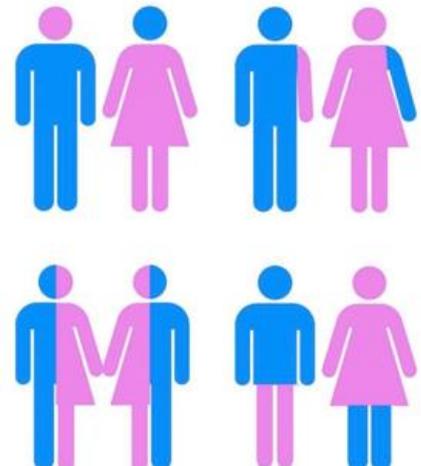
Night-shift nurses and their performance in the hospital and in social environments

Nominated by Professor Lilly Irani, Communication

**Anna Yamamuro**, ROOSEVELT COLLEGE

Masculinity, Sexuality, and Idol Stardom: The Many Appeals of Korean Drama "You're Beautiful"

Nominated by Professor Layoung Shin, History, Transnational Korean Studies



PANEL 14  
**Marine Biology & Ecology**  
Morning ★ Solis 110

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**Kimberly Chang**, WARREN COLLEGE

Characterization of the Chaetopterus Ferritin

Nominated by Professor Dimitri Deheyn, Scripps Institution of Oceanography

**Madelin Andersen**, MUIR COLLEGE

Coral Survivorship and Settlement Preference on Landscape Scales at Palmyra Atoll

Nominated by Professor Jennifer Smith, Scripps Institution of Oceanography

**Maryanne Beckwith**, MUIR COLLEGE

An ROV study of Deep-Sea Demersal Fish Communities in the Gulf of California

Nominated by Professor Lisa Levin, Integrative Oceanography Division

**Leeann Alferness**, MARSHALL COLLEGE

The extraction and purification of light producing proteins from the luminous brittlestar *Ophiopsila californica* (Echinodermata).

Nominated by Professor Dimitri Deheyn, Scripps Institution of Oceanography

**Erin Navarro**, ROOSEVELT COLLEGE

Culture-Dependent and Culture-Independent Characterization of Microbial Communities in Marine Sponges from Guam

Nominated by Professor Eric Allen, Microbiology / Scripps Institution of Oceanography

**Corinne Amir**, MUIR COLLEGE

Invasion Dynamics of *Rhodactis howesii* at Palmyra Atoll.

Nominated by Professor Jennifer Smith, Scripps Institution of Oceanography

**Blaine Novak Pilch**, REVELLE COLLEGE

**Dustin James**, MUIR COLLEGE

**Jessica Davids**, MUIR COLLEGE

Spider Diversity at the Scripps Coastal Reserve

Nominated by Professor Heather Henter, Biology



PANEL 15  
**Brain Processing**  
Morning ★ Solis 111

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**Sara Brooke**, ROOSEVELT COLLEGE

**Diego Gomes**, MUIR COLLEGE

**Brookelynn McGeorge**, MUIR COLLEGE

Using Logical Metonymies to Unravel Semantic Processing

Nominated by Professor Thomas Urbach, Cognitive Science

**Kiana Miyamoto**, ROOSEVELT COLLEGE

Hemispheric Differences in Linguistic Prediction Given High Constraint Contexts

Nominated by Professor Katherine DeLong, Cognitive Science

**Daniel Franz**, WARREN COLLEGE

ERP contrast manipulation on semantic processing

Nominated by Professor Katherine DeLong, Cognitive Science

**Shuying Yu**, REVELLE COLLEGE

Eye movements, Memory, and Awareness of Whether a Scene Is Old or New

Nominated by Professor Christine Smith, Psychiatry

**Dara Moghavem**, MARSHALL COLLEGE

Rotational Stimulus for Encoding Phase and Frequency for SSVEP Based BCIs

Nominated by Professor Virginia de Sa, Cognitive Science

**Neehar Kondapaneni**, ROOSEVELT COLLEGE

Increased Speed of Signal Propagation over Multiple Cortices after Motor Learning

Nominated by Professor Takaki Komiyama, Neurosciences



PANEL 16

## Visual Art / Art History / Film

Afternoon ★ Faculty Club, Atkinson Pavilion

Moderator ★ Professor Alain J.J. Cohen, Literature

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**Chloe Lopez**, MUIR COLLEGE

Insecurity Blanket

Nominated by Professor Sheldon Brown, Visual Arts

**Rebecca Fisher**, ROOSEVELT COLLEGE

What Would Your Pet Say?

Nominated by Professor Amy Alexander, Visual Arts

**Grace O'Connell**, SIXTH COLLEGE

Bringing the Rain: Living Well in the Modern Hopi Landscape

Nominated by Professor Elizabeth Newsome, Visual Arts

**Louise Wilson**, MUIR COLLEGE

Olmec Influence on Ceramics in Pre-Columbian Mesoamerica: An Analysis and Comparison of Four Ceramic Objects from Different Time Periods Housed in the Collections of the San Diego Museum of Man

Nominated by Professor Elizabeth Newsome, Visual Arts

**Kelsey Roman**, MUIR COLLEGE

Maya Blue and Ancient Concepts of Kingship

Nominated by Professor Elizabeth Newsome, Visual Arts

**Yinrou Wang**, SIXTH COLLEGE

Post-Internet 3D Game

Nominated by Professor Amy Alexander, Visual Arts

**Amy Chung**, MARSHALL COLLEGE

"Vertigo," Nightmare, and Semiotics:

Manifestation of Guilt and Fear in Dreams

Nominated by Professor Alain J.J. Cohen,  
Literature

**Karemy Valdez**, MUIR COLLEGE

Andrei Tarkovsky's The Mirror: Interpreting Aleksei's Dreams

Nominated by Professor Alain J.J. Cohen, Literature



PANEL 17

## **Community, Social, & Economic Justice**

Afternoon ★ Faculty Club, Dining Area

Moderator ★ Professor Isaac Martin, Sociology

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**Antonio Greenwood**, MUIR COLLEGE

The Struggle for Recognition: Black Students and Activism at UC San Diego

Nominated by Professor Abigail Andrews, Sociology

**Kathleen Mitchell**, MUIR COLLEGE

A Conversation About Food Conservation

Nominated by Professor Sue Peerson, Urban Studies & Planning

**Cheryl Lim**, WARREN COLLEGE

A Study of Alternative Food Systems and their Impact on the Local Community

Nominated by Professor Mirle Rabinowitz-Bussell, Urban Studies & Planning

**Michael Capuano**, ROOSEVELT COLLEGE

Poverty and Homelessness 2007-2014: Concurrent or Causal?

Nominated by Professor Elaine Denny, Urban Studies & Planning

**Brenda Torres**, MUIR COLLEGE

Books Not Bars: Analyzing the Role of Educators and Community leaders in the Facility to Community Transition

Nominated by Professor Luz Chung, Education Studies



PANEL 18

## Community Health

Afternoon ★ Faculty Club, Library

Moderator ★ Professor Ana Navarro, Family Medicine & Public Health

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**Emma Romberg**, ROOSEVELT COLLEGE

**Nadia Tabatabaepour**, MUIR COLLEGE

Nutritional, Safe, and Locally Grown: Food Security through Quality Produce Distribution by Coastal Roots Farm and its Partners

Nominated by Professor Ana Navarro, Family Medicine and Public Health

**Alisa Ochoa**, ROOSEVELT COLLEGE

Acculturation and Fast Food Consumption in Overweight Mexican-American Mothers and Adult Daughters

Nominated by Professor Becky Marquez, Family and Preventative Health

**Harold Gene Dela Cruz**, MARSHALL COLLEGE

Utilizing Community Engagement to Increase the Effectiveness of Parks as Health Interventions

Nominated by Professor Leslie Lewis, Anthropology and Urban Studies & Planning

**Elzbeth Islas**, MUIR COLLEGE

Mental Health Advocacy and UCSD Students of Color Involved in Social Justice Work who Have Mental Illness

Nominated by Professor Yen Le Espiritu, Ethnic Studies

**Nicole Pleskow**, SIXTH COLLEGE

Role Play helps children develop a sense of self that will help serve them in the adult world.

Nominated by Professor Olga Vasquez, Communications

**Jacqueline Doan**, ROOSEVELT COLLEGE

Parental Perception of Child Weight

Nominated by Professor Sheila Gahagan, Academic General Pediatrics, Child Development, and Community Health

**Susie Manucharyan**, MUIR COLLEGE

Promoting Healthy Lifestyles at The Preuss School

Nominated by Professor Becky Marquez, Family Medicine and Public Health

**Antoine Stevens-Phillips**, MARSHALL COLLEGE

Substance Use and Retention in HIV Medical Care in the Bronx, NY

Nominated by Professor Laramie Smith, Medicine

**Community**  
Health

PANEL 19

## **Animal Behavior**

Afternoon ★ Faculty Club, Room 1

Moderator ★ Professor Katerina Semendeferi, Anthropology

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**Brian Mi**, MUIR COLLEGE

**Rediet Geremew**, REVELLE COLLEGE

The Relationship between Social Interactions and Boldness in *Stegodyphus Dumicola*  
Nominated by Professor Noa Pinter-Wollman, BioCircuits Institute

**Alyssa Ioannou**, REVELLE COLLEGE

The Role of Imitation in Social Cognition of Bottlenose Dolphins  
Nominated by Professor Christine Johnson, Cognitive Science

**Mary Graves**, WARREN COLLEGE

The Limits of Working Memory in Rodents  
Nominated by Professor Robert Clark, Psychiatry

**Tamara Zubatiy**, ROOSEVELT COLLEGE

A Structured Sensorimotor Task to Study Representations of Movement in the Mouse Brain  
Nominated by Professor Takaki Komiyama, Neuroscience

**Isabel Hermsmeyer**, REVELLE COLLEGE

The Peculiar Diet of *Paranthropus boisei* and an investigation of *Theropithecus gelada* as a Model  
Nominated by Professor Margaret Schoeninger, Anthropology



PANEL 20  
**Physics & Space Science**  
Afternoon ★ Faculty Club, Room 2

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**Kristine Khieu**, MUIR COLLEGE

**Richard Valle**, REVELLE COLLEGE

An Instrument for Chipping and Collecting an Asteroid Sample

Nominated by Professor Alan Hargens, Orthopaedic Surgery

**Bethany Ludwig**, SIXTH COLLEGE

Newly Formed Dust Mass in Core Collapse Supernova Remnant E0102

Nominated by Professor Karin Sandstrom, Physics

**Debby Tran**, SIXTH COLLEGE

The Astrometric Calibration of the Gemini Planet Imager

Nominated by Professor Quinn Konopacky, Physics

**Haiyang Kehoe**, ROOSEVELT COLLEGE

Synthesis of Oxides over Dust Surface Analog

Nominated by Professor Subrata Chakraborty, Chemistry

**Vidya Premkumar**, REVELLE COLLEGE

Laser Study of Nanoparticle Size and Dynamics

Nominated by Professor Oleg Shpyrko, Physics

**Olesya Kovalchuk**, WARREN COLLEGE

X-ray Studies of Ultrafast Phase Transition in V2O3

Nominated by Professor Oleg Shpyrko, Physics

**Nima Assad**, MUIR COLLEGE

Minimal realistic SU(5) Grand Unified Theory

Nominated by Professor Benjamin Grinstein, Physics



## Protein Folding & Interactions

Afternoon ★ Faculty Club, Room 3

Moderator ★ Professor Stephanie Grainger, Cellular & Molecular Medicine

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**Christine Rahal**, WARREN COLLEGE

Looking for novel interacting partners with mismatch repair protein Msh2  
Nominated by Professor Richard Kolodner, Institute for Genomic Medicine

**Dan Ma**, WARREN COLLEGE

Assessing the Stability of A25T Transthyretin Oligomers by Urea Denaturation  
Nominated by Professor Christina Sigurdson, Pathology

**Priscilla Chan**, SIXTH COLLEGE

Role of ATF6 in P23H Rhodopsin Degradation  
Nominated by Professor Jonathan Lin, Pathology

**Chet Huan (Krystal) Oon**, REVELLE COLLEGE

Fzd5 and Fzd9b interact with Wnt9a  
Nominated by Professor Karl Willert, Cellular & Molecular Medicine

**Nicole Nguyen**, REVELLE COLLEGE

Visualizing Wnt9a-Fzd interactions  
Nominated by Professor Karl Willert, Cellular & Molecular Medicine

**Jenny Lee**, SIXTH COLLEGE

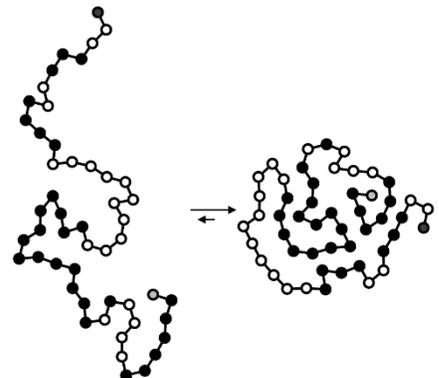
The Role of Cyclic di-AMP in Synechococcus Elongatus  
Nominated by Professor Susan Golden, Molecular Biology

**Chi Hui Huang**, MARSHALL COLLEGE

CNV Genes Screening using Yeast-Two-Hybrid Approach  
Nominated by Professor Lilia Iakoucheva, Psychiatry

**Michael Hayes**, REVELLE COLLEGE

Decoding the Crosstalk Between a Chromatin Modifier and the Morphogenesis Checkpoint  
Nominated by Professor Lorraine Pillus, Biology



PANEL 22

## Computer Science & Electrical Engineering

Afternoon ★ Faculty Club, Room 4

Moderator ★ Professor Steven Naleway, Mechanical & Aerospace Engineering

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**Ilse Tse**, WARREN COLLEGE

Using Cluster Analysis to Quantify the Difficulty of Design Space Exploration

Nominated by Professor Ryan Kastner, Computer Science & Engineering

**Aidan Macdonald**, SIXTH COLLEGE

Statistical Efficiency Evaluation of Condor System

Nominated by Professor Frank Wuerthwien, Physics

**Heriberto Carrera Alvarez**, MUIR COLLEGE

Implementation of Inductive Power Transfer with Electromagnetic Levitation

Nominated by Professor Oscar Vazquez Mena, Nanoengineering

**Shreyash Bhattarai**, MUIR COLLEGE

Sensing using metamaterials

Nominated by Professor Boubacar Kante, Electrical & Computer Engineering

**Michael Breeden**, WARREN COLLEGE

Radial p-i-n GaNP Microwire Solar Cells

Nominated by Professor Charles Tu, Electrical & Computer Engineering

**Jeffery Sun**, WARREN COLLEGE

Characteristics of Highly Workable Concrete in CIDH Pile Applications

Nominated by Professor Pui-Shum Shing, Structural Engineering

**Ian Dickeson**, WARREN COLLEGE

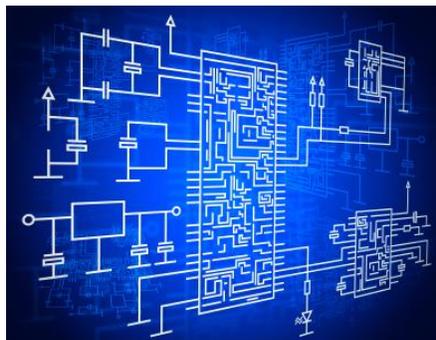
Development of a Seismic Teaching Aid

Nominated by Professor Lelli Van Den Einde, Structural Engineering

**James Mallard**, SIXTH COLLEGE

Development of a High School Capstone Project To Promote Earthquake Safety

Nominated by Professor Lelli Van Den Einde, Structural Engineering



PANEL 23

## Cardiac Studies

Afternoon ★ Faculty Club, Room 5

Moderator ★ Professor Alice Zemijic-Harpf, Anesthesiology

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**Francesca Sakamoto**, MUIR COLLEGE

Cardiac-myocyte Ablation of Talin1 and Talin2 during Adulthood Results in Dilated Cardiomyopathy

Nominated by Professor Robert Ross, Medicine, Cardiology

**Edward Aminov**, REVELLE COLLEGE

SmartShunt-Development of a Gradually Increasing Pulmonary Shunt

Nominated by Professor James Friend, Mechanical & Aerospace Engineering

**Lauren Waller**, REVELLE COLLEGE

Unraveling the CARP1/PKC biomechanical signaling pathway

Nominated by Professor Stephan Lange, Medicine

**Yanmin Ji**, MUIR COLLEGE

**Pourya Pourhosseini**, WARREN COLLEGE

Worminator 2.0

Nominated by Professor James McKerrow, Skaggs Pharmaceutical Sciences

**Stephanie Thomas**, REVELLE COLLEGE

Risk allele at 9p21 uniquely regulates connexins to induce arrhythmic phenotypes in patient-derived iPSCs

Nominated by Professor Adam Engler, Bioengineering



PANEL 24

## Earth Science & Oceanography

Afternoon ★ Faculty Club, Room 6

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**Christy Liang**, ROOSEVELT COLLEGE

Neon Isotope Fractionation at Close-Off Depth at the Firn-to-Ice Transition in the Greenland Ice Sheet

Nominated by Professor Jeffrey Severinghaus, Scripps Institution of Oceanography

**Jimmy Luong**, SIXTH COLLEGE

Land use factors affecting metal accumulation in aging biofilters: An Australian chronosequence study

Nominated by Professor Lisa Levin, Scripps Institution of Oceanography

**Mandy Nichols**, WARREN COLLEGE

Forest Cover Loss in Brazil's Semi-Arid Regions

Nominated by Professor Jennifer Burney, Global Policy & Strategy

**Mayuri Sadhasivan**, REVELLE COLLEGE

A Stochastic Model for Geomagnetic Dipole Variations

Nominated by Professor Catherine Constable, Scripps Institution of Oceanography

**Maria Winters**, MUIR COLLEGE

Identifying Physical-Biological Interactions and Variability in Ocean Eddies in the California Current System

Nominated by Professor Art Miller, Scripps Institution of Oceanography



## Neuroscience & Neurobiology [PM]

Afternoon ★ Peterson 102

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**Harry Liu**, REVELLE COLLEGE

Charcot Marie Tooth Disease Type 2B: Study of a Mouse Knockin Model of Rab7V162M  
Nominated by Professor Chengbiao Wu, Neuroscience

**Jieshuang Guo**, SIXTH COLLEGE

CS Wildtype Fruit Fly Memory Test in a Heat Box  
Nominated by Professor Ralph Greenspan, Biology

**Quynhmy Nguyen**, REVELLE COLLEGE

Caveolin-1 regulation of DISC1 as a Potential Therapeutic Target for Schizophrenia  
Nominated by Professor Brian Head, Anesthesiology

**Rebecca Uber**, ROOSEVELT COLLEGE

Investigating the Pathogenic Mechanism of Tau P301L in Tauopathy  
Nominated by Professor Chengbiao Wu, Neuroscience

**Wilson Tan**, MARSHALL COLLEGE

**Joseph Ayoub**, REVELLE COLLEGE

Neuromodulation of Drosophila mushroom body circuits by hunger and satiety  
Nominated by Professor Jim Wang, Neurobiology

**Brian Lien**, ROOSEVELT COLLEGE

Gq-mediated signaling using designer receptors exclusively activated by designer drugs (DREADDs) enhances retinal ganglion cell axon regeneration after injury  
Nominated by Professor Andrew Huberman, Neuroscience



PANEL 26

## Genes & Genomics

Afternoon ★ Peterson 103

Moderator ★ Professor Lorriane Pillus, Molecular Biology

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**Amy Thomas**, MUIR COLLEGE

Validation of Isoform Expression Quantification

Nominated by Professor Lilia Iakoucheva, Psychiatry

**Caroline Labib**, MARSHALL COLLEGE

The Role of Heparan Sulfate Proteoglycans in Brown Adipose Tissue Activity.

Nominated by Professor Jeffery Esko, Cellular & Molecular Medicine

**Diana Youhanna**, WARREN COLLEGE

Genomic scale screening for functionally redundant genes that mediate stress resistance in plants

Nominated by Professor Julian Schroeder, Biological Sciences

**Alejandro Cerda**, REVELLE COLLEGE

Aneuploidy and Genomic Mosaicism in The Brain

Nominated by Professor Benjamin Siddoway, Molecular & Cellular Neuroscience

**Brianna Lonquich**, SIXTH COLLEGE

An in vitro method for screening CRISPR/Cas9 guide RNAs

Nominated by Professor David Traver, Cellular & Molecular Medicine

**Jessica Huang**, REVELLE COLLEGE

Sequences complementary to the miRNA 3' end are necessary for specific miRNA targeting

Nominated by Professor Amy Pasquinelli, Molecular Biology

**Jacob Story**, REVELLE COLLEGE

The Effect of Chromogranin A Dosage on Catecholamine Secretion

Nominated by Professor Sucheta Vaingankar, Medicine

**Zachary Chiang**, WARREN COLLEGE

Leveraging Hi-C Data for Variant Calling and Reconstructing Chromosome-Spanning Haplotypes

Nominated by Professor Bing Ren, Cellular & Molecular Medicine





PANEL 28

## **Economics & Econometrics / Urban Planning**

Afternoon ★ Solis 109

Moderator ★ Professor Oscar Romo, Urban Planning & Studies

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**Irvin Lan**, MARSHALL COLLEGE

The Effect of Pre-Lecture Preparation Time on Professors' CAPE Score

Nominated by Professor Eli Berman, Economics

**Stephanie Hao**, ROOSEVELT COLLEGE

Player Compensation and Team Success in the National Hockey League

Nominated by Professor Ross Starr, Economics

**John Chisholm**, ROOSEVELT COLLEGE

China's Development Financing to Sub-Saharan Africa: Rogue or Reciprocal?

Nominated by Professor Clark Gibson, Political Science

**Alison Bildsoe**, MUIR COLLEGE

The Role of Race and Ethnicity in Pocketbook Voting

Nominated by Professor Marisa Abrajano, Political Science

**Payton Carrol**, SIXTH COLLEGE

The Problem of the Last Mile in Sustainable Development and Planning: Mindfulness is the Answer

Nominated by Professor Elaine Denny, Joint Doctoral Candidate, Political Science and International Relations/Pacific Studies

**Natalia Jepsen**, SIXTH COLLEGE

Establishing Youth Participation in Land Use Decisions: A Comparative Study in San Diego Community Planning

Nominated by Professor Keith Pezzoli, Urban Studies & Planning





PANEL 30

**Psychiatry & Public Health**

Afternoon ★ Solis 111

Moderator ★ Professor Lilia Iakoucheva, Psychiatry

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**Qingying Luo**, ROOSEVELT COLLEGE

Playing Games to Assess Attention in Teens with Autism

Nominated by Professor Leanne Chuokoskie, Neuroscience

**Rachel Becker**, ROOSEVELT COLLEGE

Altered Leg Circumference and Muscle and Skin Hemodynamics during Lower Body Negative Pressure and Recovery

Nominated by Professor Alan Hargens, Orthopaedic Surgery

**Imho Jang**, MUIR COLLEGE

Does Health Status Affect Patient Preferences for Sharing Clinical Data for Research?

Nominated by Professor Hyeoneui Kim, Biomedical Informatics

**Erin Anderson**, MARSHALL COLLEGE

eScreening and Veteran Satisfaction

Nominated by Professor Niloofar Afari, Psychiatry

**Stephanie Lam**, MUIR COLLEGE

Ethical and Social Issues in Nanomedicine

Nominated by Professor Carrie Wastal, Muir College Writing Program

**Caitlyn Lanigan**, MUIR COLLEGE

FDA Regulation of Probiotics

Nominated by Professor Carrie Wastal, Muir College Writing Program

**Jennifer Choi**, SIXTH COLLEGE

The role of neurocognition in suicidality among people with schizophrenia

Nominated by Professor Colin Depp, Department of Psychiatry



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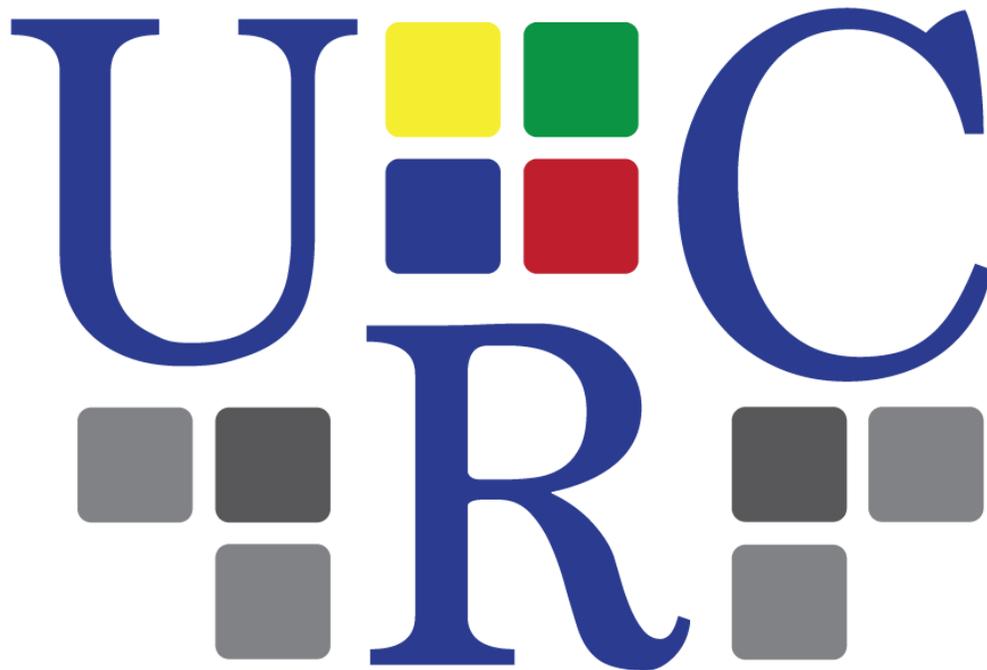
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In addition to facilitating research based faculty/student contact, AEP provides other avenues for faculty and student interaction, including faculty moderation at research conferences and informal gatherings such as Coffee and Conversation with Faculty. AEP provides both academic year and summer research, training, and scholarship opportunities, maximizing student opportunities to participate in research-related and personal and professional development activities. Many of the programs provide scholarship or stipend support. Summer programs also provide on-campus housing or a housing subsidy that partially offsets the costs of housing.

AEP's support is comprehensive. The office is an excellent resource for students interested in completing one research assignment or planning for an academic or research career. It also arranges opportunities for networking with peers, professors, and professionals, on and off-campus. Most programs follow the cohort model that enhances a student's sense of belonging at the university and treats students as valued members of a mutually supportive scholarly community.

AEP participants also receive assistance and guidance in applying for graduate school and various fellowships and scholarships. Additionally, they are given the chance to exchange ideas with other research undergraduates and faculty from across the country.

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