

UC Santa Cruz

Graduate Research Symposium 2013

Title

Ninth Graduate Research Symposium, Program, May 10, 2013

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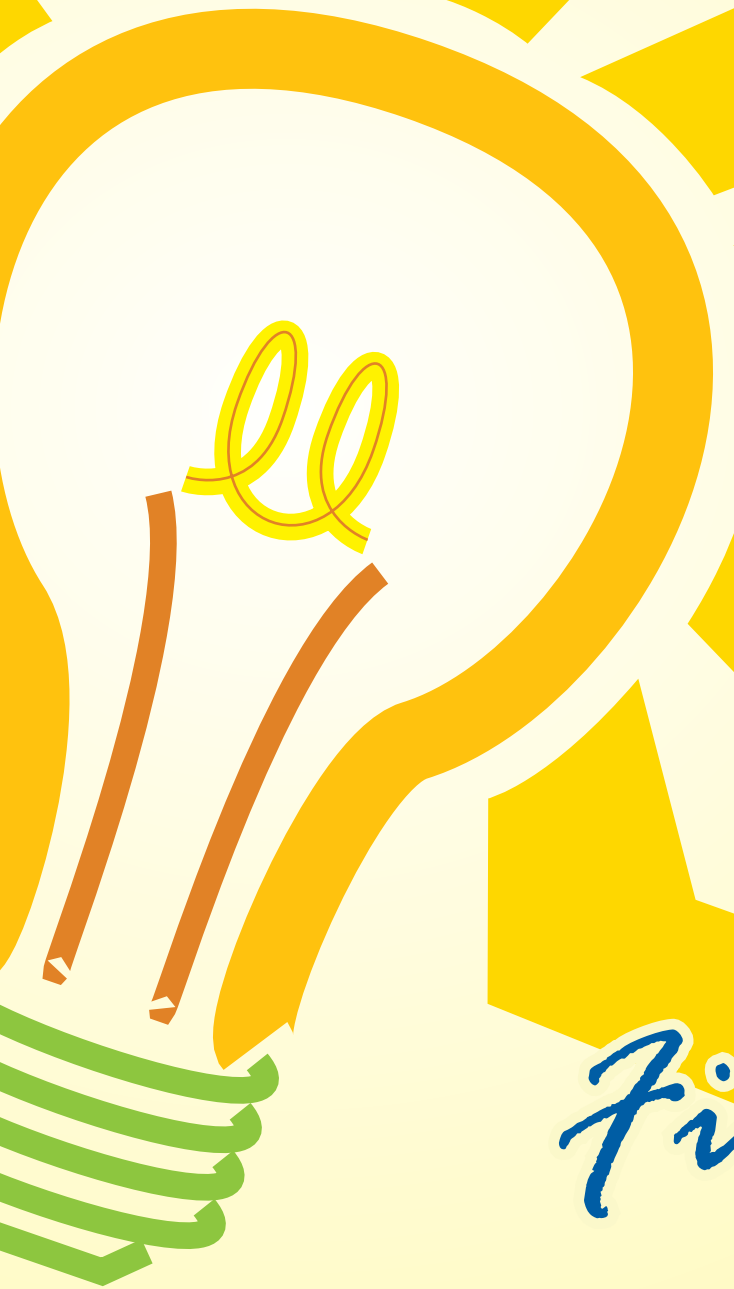
Publication Date

2013-04-01

9th Annual

Graduate Research Symposium

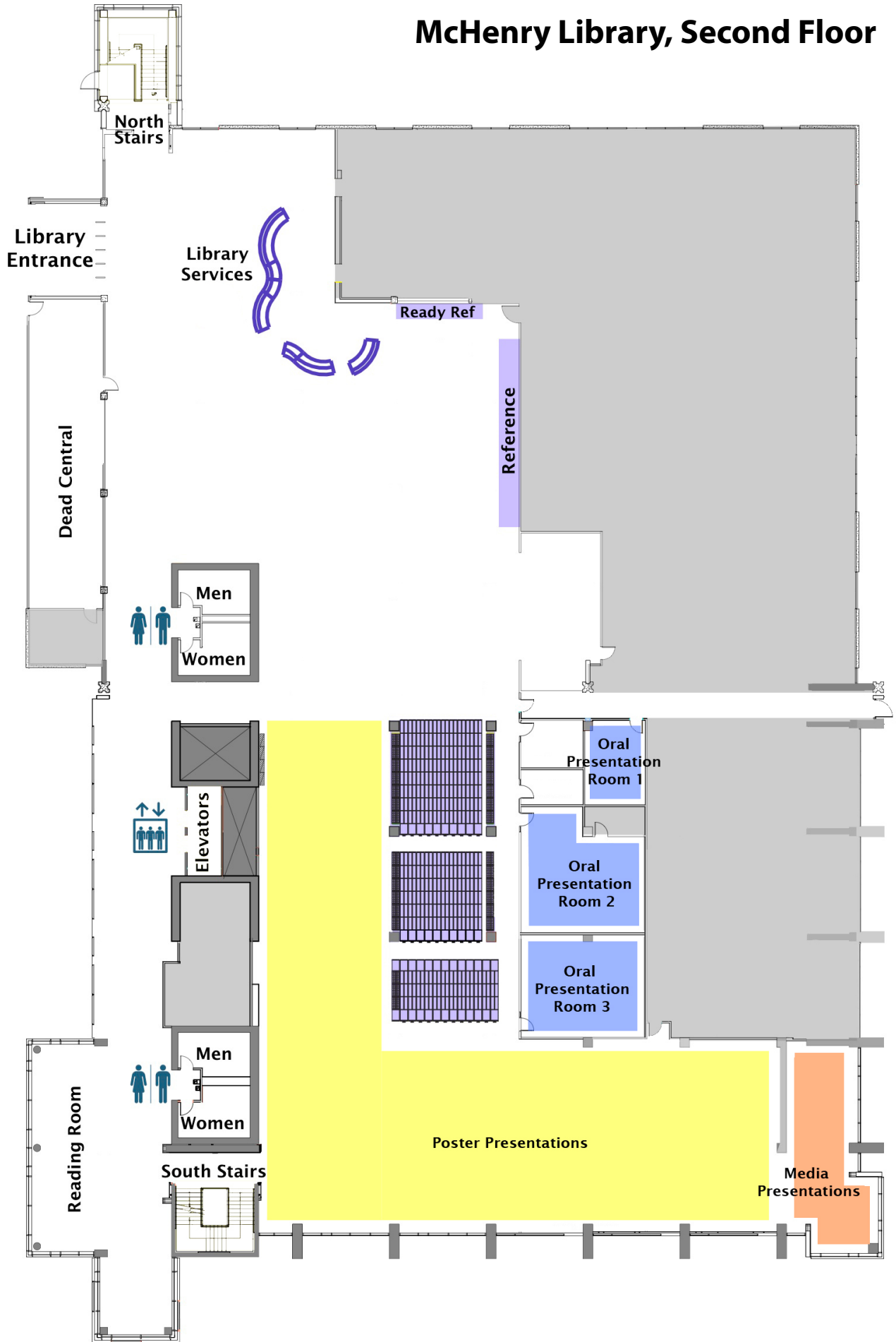
May 10, 2013



Fiat Lux!

UC Santa Cruz • Division of Graduate Studies

McHenry Library, Second Floor



Welcome to the 9th Annual Graduate Research Symposium.

UC Santa Cruz is proud to showcase the superb research of our graduate students and to celebrate their academic achievements in the past year.

UCSC's annual Graduate Research Symposium gives us the opportunity to:

- Highlight the most outstanding graduate research across the whole spectrum of disciplines on our campus;
- Recognize advanced graduate research being conducted in a wide range of programs and settings;
- Celebrate the diversity and innovativeness of our graduate community;
- Provide our graduate students with the chance 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 for the first time in the newly-renovated McHenry Library. Please use the adjacent map to find the oral, media and poster presentations listed in this program.

Please also join us for the Awards Reception immediately following the Symposium, with refreshments provided by the Global Village Café. The Deans of each academic division will award a \$100 gift certificate for the UCSC bookstore for the best presentation in the division. The UCSC Alumni Association-sponsored prizes, a \$150 gift certificate for the UCSC bookstore, also honor presentations in each academic division. Two awards recognizing outstanding presentations in any discipline will also be awarded: a \$250 cash Graduate Dean's award, and a \$500 cash award for the Chancellor's Graduate Research Prize.



Tyrus Miller
Vice Provost and Dean of Graduate Studies

Oral/Live Presentations

Presentation Room 1
Library 2320

- 1:30 pm** MODELING REGIONAL CLIMATE EFFECTS OF DEFORESTATION
IN SOUTHEAST ASIA
Heidi L Stauffer, *Earth Sciences*
- 1:40 pm** ADAPTIVE OPTICS STRUCTURED ILLUMINATION MICROSCOPY
Matthew Kissel, *Electrical Engineering*
- 1:50 pm** STRUCTURED ILLUMINATION MICROSCOPY
Juan Jose Diaz Leon, *Electrical Engineering*
- 2:00 pm** SPOON-FEEDING STARS TO SUPERMASSIVE BLACK HOLES
Morgan MacLeod, *Astronomy & Astrophysics*
- 2:10 pm** KINDERGARTENS AND WARTIME MOBILIZATION IN MODERN CHINA,
1900-1958
Melissa Brzycki, *History*
- 2:20 pm** --BREAK--
- 2:30 pm** INDIVIDUAL DIFFERENCES IN PERFORMANCE AND PERSISTENCE:
A PATH TO IMPROVED ACHIEVEMENT
Sara Green, *Psychology*
- 2:40 pm** THE ROLE OF MUSIC IN THE 1991 PERSIAN GULF WAR
Jessica Loranger, *Music*
- 3:00 pm** UNUSUAL LOCAL DISORDER IN THE ROCK-SALT THERMOELECTRIC PbTe
Trevor Keiber, *Physics*
- 3:10 pm** THE ROLE OF GENDER IN WORD RECOGNITION
Allan Jay Schwade, *Linguistics*

Oral/Live Presentations

Presentation Room 2
Library 2353

- 1:30 pm** HETEROPHONIC TUNINGS IN THE MUSIC OF LARRY POLANSKY
Giacomo Fiore, *Music*
- 1:40 pm** A NEW CLASS OF PLANETS: UNDERSTANDING THE SUPER-EARTHS
AND MINI-NEPTUNES FOUND BY NASA'S KEPLER MISSION
Eric Lopez, *Astronomy & Astrophysics*
- 1:50 pm** UNDERGRADUATE EXPERIENCES IN SUSTAINABILITY PROGRAMMING AT UCSC
Tiffany Wise-West, *Environmental Studies*
- 2:10 pm** THE DEVELOPMENT OF DIVING AND FORAGING ABILITY
IN THE SOUTHERN SEA OTTER (*ENHYDRA LUTRIS NEREIS*)
Nicole Thometz, *Ecology & Evolutionary Biology*
- 2:20 pm** --BREAK--
- 2:30 pm** "A-b-ab": AFRICAN-AMERICAN SELF-TEACHING AND CLASSICAL PEDAGOGY
IN NINETEENTH-CENTURY SCHOOLBOOKS
Heidi Morse, *Literature*
- 2:40 pm** NONTHERMAL EMISSION IN CLUSTERS OF GALAXIES: PROBING DARK MATTER
AND COSMIC RAYS WITH OBSERVATIONS IN RADIO AND GAMMA RAYS
Emma Storm, *Physics*
- 2:50 pm** THE COLLECTIVE WATER COLLECTIVE: RESEARCH AND PROBLEM-SOLVING
OF WATER ISSUES THROUGH ART PRACTICE
Danielle Williamson, *Digital Arts & New Media*
- 3:00 pm** ICE'S SHADOW WOLVES: INDIGENOUS BORDER PATROL AND THE STRUGGLE
TO MAINTAIN TOHONO O'ODHAM LAND RIGHTS
Kelsi Evans, *History*
- 3:10 pm** BIOLUMINESCENCE IN THE DEEP-SEA CTENOPHORE *BATHOCYROE FOSTERI*
Meghan Powers, *Ocean Sciences*

Oral/Live Presentations

Presentation Room 3
Library 2359

- 1:30 pm** PRODIGAL KNOWLEDGE: CONVERSATIONS IN THE STUDY OF RELIGION
Karen deVries, *History of Consciousness*
- 1:40 pm** STRATEGIES OF INCORPORATION: THE INTERFACE BETWEEN THE STATE
AND INTERNALLY DISPLACED PERSONS IN MEDELLÍN, COLOMBIA
Claudia Lopez, *Sociology*
- 1:50 pm** THE SIBYL'S VOICE: PROPHECY AND PERFORMANCE IN EARLY MODERN ITALY
Ariane Helou, *Literature*
- 2:00 pm** MUSIC AS A MARK OF CIVILIZATION: THE TELEOLOGY OF SOUND
IN NINETEENTH-CENTURY FRENCH TRAVEL WRITING
Lisa Beebe, *Music*
- 2:10 pm** SEEDS OF CHANGE: POTATOES AND PEST MANAGEMENT CHALLENGES
IN THE RURAL HIGHLANDS OF VENEZUELA
Carlo Moreno, *Environmental Studies*
- 2:20 pm** --BREAK--
- 2:30 pm** UNDERSTANDING TIME VARIABILITY IN FLOWS OF MATTER
ONTO BLACK HOLES
Hal Cambier, *Physics*
- 2:40 pm** ADAPTIVE OPTICS DEFORMABLE MIRROR
Mohamed Amine Bouchti, *Electrical Engineering*
- 2:50 pm** THE SHAPE OF STATIC UNIVERSE
Wei Yuan, *Mathematics*
- 3:00 pm** STRUCTURE OF THE ANDROMEDA GALAXY AS REVEALED
THROUGH RESOLVED STELLAR POPULATION SURVEYS
Claire Dorman, *Astronomy & Astrophysics*
- 3:10 pm** HELPING AT HOME AND THE DEVELOPMENT OF COLLABORATIVE SKILLS:
CULTURAL VARIATIONS ACROSS MEXICAN-HERITAGE
AND EUROPEAN-HERITAGE SIBLING PAIRS
Lucia Alcalá, *Psychology*

Media Presentations

Alphabetical by program and last name

MUS 127: SOUND, LISTENING,
AND CONSCIOUSNESS

Jonathan Hoefs, *Music*

GROWING PEOPLE: A DOCUMENTARY FILM
Dana Forsberg, *Social Documentation*

COMRADE SUNSHINE - A SHORT
DOCUMENTARY

Cameron Granadino, *Social Documentation*

A DOCUMENTARY FILM ON ELECTED WOMEN
LEADERS' PARTICIPATION IN GRASSROOTS
POLITICS IN RURAL INDIA

Sadia Halima, *Social Documentation*

Poster Presentations

Alphabetical by program and last name

TRACKING EARLY PASTORAL MOBILITY
IN EAST AFRICA

Anneke Janzen, *Anthropology*

COPY NUMBER ANCESTRAL VARIATION
GRAPHS - FIGURING OUT THE HISTORY
OF A TUMOR

Tracy Ballinger, *Biomolecular Engineering &
Bioinformatics*

SINGLE-CELL MANIPULATION USING
NANOPIPETTES

Michelle Maalouf, *Biomolecular Engineering
& Bioinformatics*

COMPREHENSIVE ASSESSMENTS
OF CYTOTOXIC T CELL REPERTOIRES
IN THE AUTOIMMUNE DISEASE ANKYLOSING
SPONDYLITIS

Ngan Nguyen, *Biomolecular Engineering &
Bioinformatics*

PROTEIN IDENTIFICATION WITH NANOPORES

Adam Novak, *Biomolecular Engineering &
Bioinformatics*

TieDIE: A TIED DIFFUSION MODEL
TO IDENTIFY CAUSAL PATHS LINKING
GENOMIC PERTURBATIONS TO EXPRESSION
STATES IN CANCER

Evan Paul, *Biomolecular Engineering &
Bioinformatics*

IDENTIFYING SOMATIC MUTATIONS
IN CANCER USING HIGH-THROUGHPUT
SEQUENCING DATA FROM DNA AND RNA

Amie Radenbaugh, *Biomolecular
Engineering & Bioinformatics*

A PATHWAY-CENTRIC ANALYSIS
OF TCGA MUTATION DATA

Vladislav Uzunangelov, *Biomolecular
Engineering & Bioinformatics*

TIMING NEANDERTAL-HUMAN ADMIXTURE
FROM LINKAGE SURROUNDING PRIVATE
ALLELES

Samuel Vohr, *Biomolecular Engineering &
Bioinformatics*

Poster Presentations

Alphabetical by program and last name

REACTION OF GRIGNARD REAGENTS WITH DIISOPROPYLAMINOBORANE. SYNTHESIS OF ALKYL, ARYL, HETEROARYL AND ALLYL BORONIC ACIDS FROM ORGANO(DIISOPROPYL)AMINOBORANE BY A SIMPLE HYDROLYSIS

Christopher Bailey, *Chemistry & Biochemistry*

SPECTRAL ANALYSIS OF INTERMEDIATES GENERATED DURING DIOXYGEN REDUCTION IN E. COLI B03 UBIQUINOL OXIDASE USING TIME-RESOLVED OPTICAL ABSORPTION SPECTROSCOPY

Clive Kittredge, *Chemistry & Biochemistry*

MECHANICAL UNFOLDING OF HUMAN TELOMERE G-QUADRUPLEX DNA PROBED BY INTEGRATED FLUORESCENCE AND MAGNETIC TWEEZERS SPECTROSCOPY

Xi Long, *Chemistry & Biochemistry*

UCSC BTS 2.0: BUS TRACKING SYSTEM

Kevin Abas, *Computer Engineering*

OCEANIC SCALES BALANCE THROUGH BIOMIMICRY

Gene Felice, *Digital Arts & New Media*

OBSERVATIONS OF SLOW SLIP PROCESSES NEAR THE NICOYA PENINSULA, COSTA RICA

Stephen Hernandez, *Earth Sciences*

SUBMARINE GROUNDWATER DISCHARGE FUELING HARMFUL ALGAL BLOOMS IN MONTEREY BAY

Alanna Lecher, *Earth Sciences*

AMPLIFICATION OF BEDROCK CANYON INCISION BY WIND

Jonathan Perkins, *Earth Sciences*

TECTONIC TREMOR RELATED TO 2010 AND 2011 GISBORNE SLOW SLIP EVENTS

Erin Todd, *Earth Sciences*

THE 5 SEPTEMBER 2012 COSTA RICA MW 7.6 EARTHQUAKE RUPTURE PROCESS FROM JOINT INVERSION OF HIGH-RATE GPS, STRONG-MOTION, AND TELESEISMIC P WAVE DATA AND ITS RELATIONSHIP TO ADJACENT PLATE BOUNDARY INTERFACE PROPERTIES

Han Yue, *Earth Sciences*

USING ACCELEROMETER "SMART COLLARS" TO IDENTIFY WOLF BEHAVIORAL STATES AND ENERGETIC COSTS

Caleb Bryce, *Ecology & Evolutionary Biology*

MERCURY BIOACCUMULATION AND TISSUE RELATIONSHIPS IN DEEP-DIVING NORTHERN ELEPHANT SEALS (MIROUNGA ANGUSTIROSTRIS) FROM THE NORTH PACIFIC

Sarah Peterson, *Ecology & Evolutionary Biology*

LINKING TERRESTRIAL AND MARINE PROTECTION AT THE COASTAL INTERFACE

T. E. Angela L. Quiros, *Ecology & Evolutionary Biology*

ASSESSMENT CONVERSATIONS IN A MIDDLE SCHOOL SCIENCE CLASSROOM: AN EXPLORATORY STUDY WITH ENGLISH LANGUAGE LEARNERS AND ENGLISH ONLY STUDENTS

Preetha Menon, *Education*

INTERROGATING THE EDUCATIONAL ARCHIVE: MEMORIES, MIGRATIONS, AND MOVEMENT(S)

Leah Sicat, *Education*

Poster Presentations

Alphabetical by program and last name

ON CHIP ATOMIC SLOWER

Jennifer Black, *Electrical Engineering*

METAL ORGANIC CHEMICAL VAPOR
DEPOSITION OF SEMICONDUCTOR
NANOWIRES ON DISSIMILAR SUBSTRATES

Juan Jose Diaz Leon, *Electrical Engineering*
Copresenters: David Fryauf and Junce Zhang

MOCVD GROWTH OF INDIUM
PHOSPHIDE NANOWIRE NETWORKS FOR
THERMOELECTRIC APPLICATIONS

Amanda Flores, *Electrical Engineering*
Copresenters: Juan Jose Diaz Leon, Junce
Zhang and David Fryauf

POST-GROWTH EMISSION WAVELENGTH
TUNING OF INDIUM PHOSPHIDE NANOWIRES
USING ALUMINUM OXIDE COATING
BY PLASMA-ENHANCED ATOMIC LAYER
DEPOSITION

David Fryauf, *Electrical Engineering*
Copresenters: Junce Zhang and Juan Jose
Diaz Leon

MICROPARTICLE SORTING
ON OPTOFLUIDIC CHIP

Kaelyn Leake, *Electrical Engineering*

FABRICATION-DEPENDENT PROPERTIES OF
SOLID-STATE NANOPORE AND CORRELATED
OPTO-ELECTRICAL NANOPARTICLE
DETECTION WITH AN ON-CHIP NANOPORE

Shuo Liu, *Electrical Engineering*

SELECTIVE AREA GROWTH OF INDIUM
PHOSPHIDE NANOPILLARS ON AMORPHOUS
SILICON SEGMENTS PATTERNED BY
NANOIMPRINTING LITHOGRAPHY

Kate Norris, *Electrical Engineering*
Copresenters: David Fryauf, Juan Jose Diaz
Leon and Junce Zhang

RESISTIVE SWITCHING BEHAVIOR
OF SiO₂ CO-SPUTTERED WITH PLATINUM

Kate Norris, *Electrical Engineering*
Copresenters: David Fryauf, Juan Jose Diaz
Leon and Junce Zhang

HYBRID OPTOFLUIDIC INTEGRATION
Josh Parks, *Electrical Engineering*

OPTICAL DETECTION OF MAGNETIZATION
DYNAMICS BEYOND THE DIFFRACTION LIMIT
IN INDIVIDUAL NANOMAGNETS IN A DENSE
ARRAY

Yu Yahagi, *Electrical Engineering*

INDIUM PHOSPHIDE NANOWIRE NETWORK
FOR THERMOELECTRIC APPLICATIONS

Junce Zhang, *Electrical Engineering*
Copresenters: David Fryauf and Juan Jose
Diaz Leon

CONSERVATION OF NATIVE POLLINATORS
AT THE UNIVERSITY OF CALIFORNIA, SANTA
CRUZ

Hamutahl Cohen, *Environmental Studies*

TROPHIC CASCADES: PUMAS, DEER,
AND OAKS IN THE SANTA CRUZ MOUNTAINS
Veronica Yovovich, *Environmental Studies*

BLOODY UNITIES: TRANSATLANTIC
MORAVIAN IDENTITIES AND THE LANGUAGE
OF RELIGIOUS RADICALISM
IN EARLY AMERICA

Benjamin Pietrenka, *History*

“A GOOD BEATING IS NEEDED TO KEEP HIM
IN LINE”: BOYS, BOYHOOD, AND JUVENILE
DELINQUENCY IN CALIFORNIA, 1890-1910
Jeffrey Sanceri, *History*

THE FILTERING LISTENER:
EXPLAINING PHONOLOGICAL DISPERSION
Thomas Denby, *Linguistics*

Poster Presentations

Alphabetical by program and last name

IAMBIC-TROCHAIC REVERSAL
IN CUSCO QUECHUA

Peter Fabian, *Linguistics*

CASE CONCORD AT THE SYNTAX-PHONOLOGY
INTERFACE

Mark Norris, *Linguistics*

PREDICTING STRICT VS. SLOPPY REFLEXIVES
IN VP ELLIPSIS

Matthew Ong, *Linguistics*

GLOBAL PORT CITIES OF THE PACIFIC:
SAN FRANCISCO AND VALPARAISO, 1848-50

Kendra Poppy, *Literature*

WETLAND AMERICAS: MAPPING A LITERARY
HISTORY OF NEW ORLEANS

Matt Suazo, *Literature*

IDENTIFICATION OF ALGAL STRESS SURVIVAL
GENES THROUGH FUNCTIONAL SCREENING
OF WHOLE TRANSCRIPTOME

Jesica Navarrete, *Microbiology &
Environmental Toxicology*

BIOFILM FORMATION AND ENVIRONMENTAL
STRESS IN VIBRIO CHOLERAЕ

Loni Townsley, *Microbiology &
Environmental Toxicology*

FROM ARMOR TO ACHILLES HEEL:
TARGETING THE GLYCAN SHIELD OF HIV
IN NOVEL VACCINE STRATEGIES

Rachel Doran, *Molecular, Cell, &
Developmental Biology*

A DIRECT ROLE FOR QUAKING
IN MUSCLE-SPECIFIC ALTERNATIVE SPLICING

W. Sam Fagg, *Molecular, Cell, &
Developmental Biology*

DARK MATTER, MICROWAVES,
AND GALAXIES: HOW TO SHED LIGHT
ON A DARK SUBJECT

Eric Carlson, *Physics*

PROBING DARK MATTER WITH ANTINUCLEI
ON THE INTERNATIONAL SPACE STATION

Adam Coogan, *Physics*

200 MeV PROTON RADIOGRAPHY STUDIES
WITH A HAND PHANTOM USING
A PROTOTYPE PROTON CT SCANNER

Tia Plautz, *Physics*

SOCIAL HISTORIES OF CAPITAL DEFENDANTS

Joanna Weill, *Psychology*

COMMUNICATING SCIENCE RESEARCH TO
THE PUBLIC

Rina Shaikh-Lesko, *Science Communication*

UNDERSTANDING EMPOWERMENT IN WATER
AND SANITATION: METHODOLOGY AND FIELD
STUDY IN RURAL INDIA

Abigail Brown, *Sociology*

WOMEN AS PAWNS, WOMEN AS AGENTS:
POPULAR DEVELOPMENT STRATEGIES
IN INDIA, MEXICO AND ETHIOPIA

Ariana Kalinic, *Sociology*

BAYESIAN NONPARAMETRIC MODELING
FOR MULTIVARIATE ORDINAL REGRESSION

Maria De Yoreo, *Statistics & Applied
Mathematics*

HIDDEN MARKOV MODELS FOR NANOPORE
TRANSITION RATE PARAMETER ESTIMATION

Lars Johnson, *Statistics & Applied
Mathematics*

NUMERICAL SIMULATIONS OF BOUNDARY
DRIVEN DYNAMOS

Katelyn White, *Statistics & Applied
Mathematics*

Acknowledgements

Thank you to all who contributed to the success of this event...

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Michelle Whittingham, *Associate Vice Chancellor, Enrollment Management*

SPECIAL THANKS

Deborah Bryant, *TAPS, Parking Assistance*
Juan Perez and Team, *Media Services*
Evan Hartney, *Event Coordination*
Tim Stephens, Carolyn Lagattuta and Kirstin Guinn, *Publicity*
Ginny Steel, Kate McGirr, Lee Jaffe and Team, *Location Assistance*
Adam Hoffman, *Catering Services*
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The Terminal Degree Jazz Band:

Ben Akiyama, *Trumpet, Molecular, Cell & Developmental Biology PhD*
Sherol Chen, *Saxophone/Flute, Computer Science PhD*
David Fryauf, *Drums, Electrical Engineering PhD*
Raj Maitra, *Keyboard, Computer Science MS*
Yu Yahagi, *Bass Guitar, Electrical Engineering PhD*

