

The Twelfth Annual SJSU College of Science
Student Research Day
May 6, 2016
10:00am to 1:00pm
Duncan Hall

PROGRAM

SPECIAL POSTER

*College of Science students matriculating to Graduate or Professional Schools
in Spring 2016 and students working in off-site summer programs.*

RESEARCH POSTERS

Presenting students are underlined.

Department of Biological Sciences

- 1. Diversity of Phosphate Solubilizing Bacteria Influenced by Agricultural Practices for Coffee Plants.**
Becky Lee, Adam Caldwell
Faculty: Cleber Ouverney
- 2. Effects of High-Fat Diet on Follicle Count Ratios in Mouse Ovaries.**
Dania Abid, Bianca Opara
Faculty: Shelley Cargill
- 3. Effects of Low Dose Long Duration Lipopolysaccharide-Induced Inflammation on the Ovarian Primordial Follicle Pool and Follicle Stage Distribution in Mice.**
Krista Wirth, Anastasia Pozdnyakova
Faculty: Shelley Cargill
- 4. Characterization of Th17-Like Tregs During Late Stages of Infection with *B. pertussis* in Mice.**
Andrew Smith, Tarek Jakoush, Elvia Silva
Faculty: Tzvia Abramson
Collaborators: Hana You, Victoria Wu
- 5. Modelling Endothelial Cells to Investigate Lymphocyte Proliferation Under Inflammatory Conditions.**
Aneesha Kulkarni
Faculty: Dr. Tzvia Abramson
Collaborators: Jessica Westfall

Department of Biological Sciences

6. **Characterization of Innate Lymphoid and Dendritic Cell Populations during *Bordetella pertussis* and *Bordetella parapertussis* Infection.**
Nicole Pavlov, Jennifer Stokes, Stella Park
Faculty: Dr. Tzvia Abramson
7. **mBM-Mesenchymal Stem Cells as a Vehicle For Immunization of C57BL6 Mice Against *Bordetella pertussis*.**
Velandi Maroli, Sree Lakshmi
Faculty: Dr. Tzvia Abramson
8. **The Effects of Obesity on Spinal Cord Excitability.**
Shea Putnam, Morgan Chang, Alejandro Lopez, Puneet Sanghera
Faculty: Katherine Wilkinson
9. **The Effect of Diet Induced Obesity on Muscle Spindle Afferent Function in Adult Male Mice.**
Lubayna Elahi, Adam Cai, Krystle Shamai, Connor Criddle
Faculty: Katherine Wilkinson
10. **Drought Tolerance of Invasive Yellow Starthistle in a Serpentine Grassland.**
Elise Scripps
Faculty: Susan Lambrecht
11. **Identification and Expression of Genes Involved in Iron and Lanthanide Homeostasis in *Methylobacterium extorquens* AM1.**
Justin Wingett, Bryan Tamsir, Jennifer Doherty, Mayra Resnik, Ramen Kanda
Faculty: Elizabeth Skovran

Department of Chemistry

12. **Small Molecule Inhibition of LasI.**
Alexander Jiu
Faculty: Laura Miller Conrad
13. **Identification of the Target of an Antipyocyanin Compound in *P. aeruginosa*.**
Thu Nguyen
Faculty: Laura Miller Conrad
14. **Polymyxin in Antibiotic Resistant *Pseudomonas aeruginosa*.**
Husna Bassal
Faculty: Laura Miller Conrad
15. **Qualitative Analysis of Mesquite Pod Flour.**
Tina Nguyen, Charlie Ly, Sunny Jarman, Diona Diep, Cuong Pham
Faculty: Maria T. Matyska-Pesek, Joseph J. Pesek
16. **Quantitative Analysis of Antioxidants Found in Yerba Mate Leaves via HPLC and MS Detection.**
Joshua Topete, Seiichiro Watanabe, Irene Lin, Dung Pham, Michael V. Lim, and Karla Fonseca
Faculty: Maria T. Matyska-Pesek, Joseph J. Pesek
17. **Compounds Found in Pomegranate Peel - Quantitative Analysis by LC-MS.**
Brent Modereger
Faculty: Maria T. Matyska-Pesek, Joseph J. Pesek

Department of Chemistry

18. **Mystery of a Tree Bark from Brazil – Analysis of Compounds Responsible for Medicinal Properties of the Extract.**
Irene Lin, Jacob Sanchez
Faculty: Maria T. Matyska-Pesek, Joseph J. Pesek
19. **Aqueous Normal Phase Chromatography (ANP) - Application in Analysis of Organophosphate Pesticides in urine samples.**
Christine Doan, Jesus Guido, Vincent Bui
Faculty: Maria T. Matyska-Pesek, Joseph J. Pesek
20. **Speciation, Photophysical, and Chiroptical Properties of Europium (III) Tetracycline Species.**
Adrian Riives
Faculty: Gilles Muller
21. **Pitting Rational Against Random: Improving Light-Driven P450 Biocatalysts.**
Lawrence Tang, Quan Lam, Mallory Kato
Faculty: Lionel Cheruzel
22. **Development of Cross-Linked P450 Enzyme Aggregates.**
Evelynn Henri, Mallory Kato
Faculty: Lionel Cheruzel
23. **Aldol Condensation Products and Polyacetals in Organic Films Formed from Reactions of Propanal in Sulfuric Acid at Upper Troposphere/Lower Stratosphere (UT/LS) Aerosol Acidities.**
Julie Bui, Saul Perez Montano, Eric Li, Thomas Nelson, Kieu Ha, Linda Leong,
Faculty: Annalise Van Wyngarden
Collaborators: Laura T. Iraci, NASA Ames Research Center
24. **UV-Visible Absorption Properties of Mixed Organics in Sulfuric Acid Solutions: Implications for Climate Properties of Upper Troposphere/Lower Stratosphere Aerosols.**
Adrian Sandoval, Sai Somepalle, Migel Clemente, Anh Duong
Faculty: Annalise Van Wyngarden
25. **Binding of Mutant Tat Peptides to TAR RNA as a Model for Developing Hierarchical Methods Utilizing RNA-Protein Statistical Potentials.**
Phuc Tran, Thanh Le, Artem Shosnikov, Takayuki Kimura
Faculty: Brooke Lustig
- (Math #51) **Novel Multivariate Strategies for Incorporating Neighbor Information to Prediction of Solvent Accessible Residues.**
Kim Kondratieff, Saira Montermoso, Jonathan Oribello
Faculty: Andrea Gottlieb (Dept of Mathematics), Brooke Lustig
*(*This poster is located in the Mathematics Department section- Poster #51)*
26. **Protein Expression of Recombinant Cysteine Proteinase (EhCP1) from *Entamoeba histolytica*, a Human Amoeba Parasite.**
Daniel Fong
Faculty: Alberto A. Rascón, Jr.
27. **Recombinant Expression and Purification of *Aedes aegypti* Midgut Serine Protease VII (AaSPVII).**
Kamille Parungao, James Nguyen
Faculty: Alberto A. Rascón, Jr.

Department of Chemistry

28. **Recombinant Expression of Dengue Vector *Aedes aegypti* Trypsin-like Serine Proteases II and IV.**
Diane Eilerts
Faculty: Alberto A. Rascón, Jr.
29. **Ultrathin SiO₂ Shell Growth on High-pressure High-Temperature Nanodiamonds.**
Andres Arreola, Anida Len, Jasmine Sandoval
Faculty: Abraham Wolcott
30. **Direct Amination of HPHT Nanodiamonds for Biodetection**
Elena Favre, Polo Tran
Faculty: Abraham Wolcott
31. **Multiple Approaches to Sustainable Energy Sources: PbSe Solar Cells, Perovskite Solar Cells, and Nitrogen Doped ZnO Nanowires.**
Michael Leroy, Daniel Corral, Tom George, Westley See, Carlos Amaral, Grace Jeanpierre, Tung Nguyen
Faculty: Abraham Wolcott
32. **Synthesis of a Novel Stable Radical Verdazyl Unnatural Amino Acid and an Evaluation of Potential Use as a Probe via FRET Studies.**
Allisa Clemens
Faculty: David J. R. Brook
33. **Unusual Electronic Structures in Verdazyl Coordination Compounds.**
Connor Fleming, Benjamin Ploof, Erik Johnson, Dorothy Chung
Faculty: David J. R. Brook
34. **Synthesis Towards Symmetric Substituted Verdazyl 2 x 2 Grid Complexes.**
Benjamin Ploof, Connor Fleming, Erik Johnson
Faculty: David J. R. Brook

Department of Computer Sciences

35. **Image Spam Detection.**
Annapurna Annadatha
Faculty: Mark Stamp
36. **Android Malware Detection.**
Ankita Kapratwar
Faculty: Mark Stamp
37. **HTTP Attack Analysis.**
Samyuktha Sridharan
Faculty: Thomas Austin
38. **Using Music to Analyze Protein Sequences.**
Aaron Kosmatin
Faculty: Sami Khuri
39. **Multiple Sequence Alignment with Profile Hidden Markov Models.**
Shubhangi Rakhonde
Faculty: Sami Khuri

Department of Computer Sciences

40. **Energy Efficiency in Virtualized Cloud Radio Access Networks.**
Khushbu Mohta, Uladzimir Karneyenka
Faculty: Melody Moh
Collaborators: Sponsored in part by Nokia
41. **Mining Twitter for Frequency of Drug Side-Effects over a Large DataSet.**
Dennis Edison Hsu
Faculty: Melody Moh
42. **SQL Injection Detection Using Rule-based Machine Learning Techniques.**
Kevin Ross
Faculty: Melody Moh and Teng Moh
Collaborators: Dr. Jason Yao. Sponsored in part by Datiphy, Inc.
43. **Web-Based Visualization of Marine Environmental Data.**
Joseph A. James
Faculty: Teng Moh
Collaborators: Christopher A. Edwards, UCSC
44. **Sentiment Analysis of Twitter's Drug Related Tweets and Adverse Drug Events Extraction.**
Yang Peng
Faculty: Teng Moh
45. **Prediction of Indian Election Using Sentiment Analysis on Hindi Twitter.**
Parul Sharma
Faculty: Teng Moh

Department of Geological Sciences

46. **Geochemistry of the Quien Sabe Volcanics of West-Central California: Implications for the Tectonic Evolution of the California Coast Ranges.**
Carlos Rojas
Faculty: Ellen Metzger
47. **Origins and Relationships of Units in and Adjacent to the Ross Lake Fault Zone, North Cascades, Washington: Implications for Burial of Meta-Supracrustal Rocks Into the Deep Levels of Arcs.**
Davison Hogan
Faculty: Bob Miller
48. **Structure and Construction of the Cretaceous Plutons in the Sonora Pass Region of the North-Central Sierra Nevada Batholith, California.**
Gavin W. Turner
Faculty: Bob Miller

Department of Mathematics and Statistics

49. **Efficient and Accurate kNN Parameter Tuning for SVM.**
Wilson Florero-Salinas, Dan Li
Faculty: Guangliang Chen
50. **Theme Life Cycles: Making Modeling Great Again.**
Tarek Masri
Faculty: Martina Bremer
51. **Novel Multivariate Strategies for Incorporating Neighbor Information to Prediction of Solvent Accessible Residues.**
Kim Kondratieff, Saira Montermoso, Jonathan Oribello
Faculty: Andrea Gottlieb (Dept of Mathematics), Brooke Lustig (Dept of. Chemistry)
52. **Toric Ideals of Neural Codes.**
Nida Obatake
Faculty: Elizabeth Gross
Collaborators: (Nora Youngs, Harvey Mudd College)

Department of Meteorology and Climate Science

53. **A Sustainable High Performance Computing System For Teaching And Research**
Steven Boring
Faculty: Sen Chiao, Alison Bridger
54. **Quantifying SAL Aerosol Concentrations During Tropical Cyclogenesis.**
Amy Ip
Faculty: Sen Chiao
55. **Dynamical Conditions of Ice Supersaturation in Convective Systems: a Comparative Analysis Between in-situ Aircraft Observations and WRF Simulations.**
John J. D'Alessandro
Faculty: Minghui Diao
Collaborators: (Ming Chen & Hugh Morrison, National Center of Atmospheric Science) (Chenglai Wu & Xiaohong Liu, Department of Atmospheric Science: University of Wyoming)
56. **Mechanisms of Ice Crystal Formation in the Tropical Tropopause Layer.**
Kathryn Steinmann
Faculty: Minghui Diao

Department of Physics and Astronomy

57. **Preparation and Characterization of Ordered Arrays of Magnetic Nanowires.**
Eric Freda, Justin Slater
Faculty: Ranko Heindl
58. **Competing Phases of Correlated Fermions on the 1/5-depleted Square Lattice.**
Michael Mulanix
Faculty: Ehsan Khatami

Department of Physics and Astronomy

59. **Effect of Dimensionality on the Properties of Quantum Magnets on a Lattice.**
Carlos Morante
Faculty: Ehsan Khatami
60. **How Quantum is the D-wave II "Quantum Computer"?
Parallel Tempering vs the D-wave Machine in Solving Classically Hard Instances of the Random Ising Model.**
Demetrius Almada, Kelvin Ch'ng
Faculty: Ehsan Khatami
Collaborator: Itay Hen (Information Sciences Institute at USC)
61. **Surveying the Densest and the Fluffiest Galaxies.**
Christopher Dixon, Devin Cunningham, Aaron Deich, Bitha Salimkumar, Vakini Santhanakrishnan, Maria Stone, Bradley Thompson
Faculty: Aaron J. Romanowsky
Collaborators: Beth Johnson, SETI Institute
62. **The Nature and Origins of Compact Elliptical Galaxies.**
Christopher Dixon, Devin Cunningham, Angelica-Lorraine Lee, Jason Luu, Elvin Rivera, Allan Song, Maria Stone, Ali-Imran Tayeb
Faculty: Aaron J. Romanowsky

Acknowledgements:

Thanks to the College of Science for supporting this event, including Dean Michael Parrish, Stan Vaughn, Lee Veliz, Cher Jones, Marco Parent, Mike Stephens, Steve Boring, and other College Staff. Cathy Kozac, Steve Boring and colleagues in the COS Computer Center printed many of the posters for the SRD.

Congratulations and thanks to all the hard working undergraduate and graduate students and their faculty mentors who presented their work today!