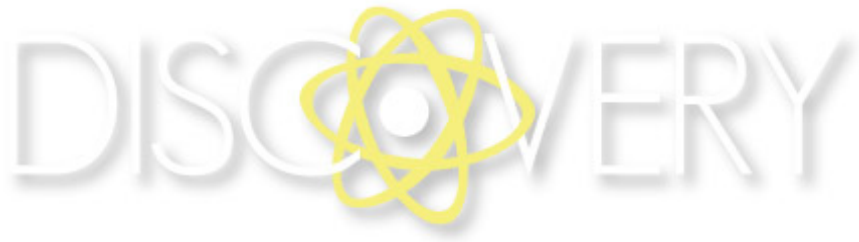
DISCOVERY
College of Science
CAL POLY POMONA



13th Annual

College of Science Research Symposium

Friday, May 25, 2018
12 – 2 p.m.
University Quad
(in front of Building 8)

DISCOVERY
College of Science
CAL POLY POMONA

13th Annual Science Research Symposium

BIOLOGICAL SCIENCES

1. **Adipose Canine Mesenchymal Stem Cells for Treatment of Canine Atopic Dermatitis**
   Ana Ramirez, Dr. Gagandeep Kaur, Dr. David Clark, Dr. Jijun Hao

2. **Bisphenol A mediated effects on offspring glucocorticoid homeostasis and obesity**
   Ira Glassman, Dr. Juanita Jellyman

3. **Constitutive and Conditional Deletion of Type 1 Dopamine Receptor (Drd1) to Study Food Anticipatory Activity**
   Dina R. Assali, Andrew P. Villa, Amanda J. Ng, Dr. Andrew D. Steele

4. **Effects of NAC and L-GSH in altering granulomatous responses against Mycobacterium tuberculosis infections**
   Hicret Islamoglu, Dr. John K. Chan

5. **Measuring the Sensitivity of Various Bacterial Strains to the Allelochemical Juglone**
   Kevin Chung, Jessica Santavanond, Karin Middleton, Areseli Servin, Dr. Kristin Bozak

6. **Comparative efficacy of fluconazole and liposomal amphotericin B in diabetic mice infected with an azole resistant or sensitive Candida albicans**
   Shirleen I. Simargi, Jon Olson, Dr. Jill Adler-Moore

7. **Exploring Strain Background as a Modulator of Food Anticipatory Activity**
   David Cun, Dr. Andrew Steele

8. **DEFINING THE MINIMAL DOPAMINE CIRCUIT MEDIATING CIRCADIAN ENTRAINMENT TO SCHEDULED FEEDING IN MICE**
   Jose Monroy, Amanda Ng, Lori Scarpa, Jeffrey Falkenstein, Dr. Andrew Steele

9. **DISTRIBUTION, LOCAL EXTINCTIONS, AND LONG-TERM CHANGE WITH COMPARISON TO HISTORICAL RECORDS OF THE ROCKWEED, PELVETIOPSIS CALIFORNICA**
   Robin J. Fales, Dr. Jayson R. Smith

10. **Vaccination with a Liposomal Vaccine Containing Aspergillus Proteins Protects Mice Against Pulmonary Aspergillosis Caused by Azole Resistant Strains of Aspergillus fumigatus**
    Matthew J. Slarve*, Jon A. Olson, Dr. Jill P. Adler

11. **An Inexpensive Quantitative Method for Testing Anti-Fungal Drug Activity Using the Invertebrate Caenorhabditis elegans**
    Ielyzaveta A. Pomytkina, Jon A. Olson, Dr. Jill P. Adler-Moore

12. **Assessment of biofilm formation of Staphylococcus epidermidis on metal alloys used for prosthetics**
    Cindy Toscano, Jeyashree Alagarsamy*, Dr. Steve Alas

13. **Recovery of California black walnut trees following drought induced dieback**
    Lauren M. Tucker*, Dr. Stephen D. Davis, Dr. Edward G. Bobich, Dr. Frank W. Ewers

14. **A population-level approach investigating sea slug species in the genus Julia**
    Sandra Muro*, Dr. Ángel Valdés

15. **Development of MIC Assay for AmBisome against Rhizopus oryzae**
    Adilene Sandoval, Dr. Jill Adler-Moore

16. **The "Love Bite" - Fatigue resistant jaw-adductor muscles allow long-lasting courtship behavior in the Southern Alligator Lizard (Elgaria multicarinata)**
    Allyn Nguyen*, Jordan Balaban, Emanuel Azizi, Dr. Robert J. Talmadge, Dr. A. Kristopher Lappin

17. **Variation in Individual European Honey bee (Apis mellifera) Foraging Behavior Across Plant Systems**
    Seth Kapp, Dr. Joan Leong

18. **Investigating allelopathy and soil moisture as factors determining community composition of a Southern California black walnut woodland**
    Jose Marfori*, Dr. Erin Questad

19. **STIV protein c92 and the pyramidal lysis of Sulfolobus solfataricus**
    Christian Pirijanian, Sabrina Vo, Robert D. Manuel, Billy Khong, Dr. Jamie Snyder

20. **Restoration of invaded walnut woodlands using a trait-based community assembly approach**
    Sierra T. Lauman*, Dr. Erin J. Questad, Dr. Edward G. Bobich, Dr. Kristin R. Bozak

21. **Does bite-force performance follow the Law of the Lever?**
    Anthony R. Powell*, Pablo A. Garcia, Dr. A. Kristopher Lappin

22. **Facilitative Effects of Nurse Shrubs on Growth and Survival of California Sage Scrub Native Plants**
    Lauren H. Quon, Dr. Erin Questad

23. **Responses of Juglans californica to Extreme Drought with Respect to Slope**
    Anna Jiselle Ongjoco, Albert Schelin, Dr. Edward Bobich

24. **STIV protein F93 is a transcription factor that regulates C92 expression playing role in the viral genome replication**
    Prudencio Merino, Dr. Jamie Snyder

25. **An Initial Investigation Into the Reproductive Biology of Garibaldi, Hypsypops rubicundus, Through Histological Preparation of Gonadal Tissue**
    Stephanie Franck, Chelsea Williams, Alyssa Mireles, Dr. Jeremy Claisse

26. **Effects of the allelopathic compound juglone on the germination and seedling success of Eriogonum fasciculatum, Frangula californica, Salsola tragus, and Salvia mellifera**
    Daisy Hernandez, Dr. Edward Bobich

27. **Alternative Splicing of the Bin1 Gene of Wild Type and Huntington's Disease Affected Mice**
    Kristiana E. Peraza, Dr. Robert J. Talmadge*

28. **RECOVERY OF RED ALGAL TURFS AND ASSOCIATED MEIOFAUNAL COMMUNITIES IN A SOUTHERN CALIFORNIA ROCKY INTERTIDAL ECOSYSTEM**
    Sean T. Agler*, Dr. Jayson R. Smith

29. **Bee Diversity and Abundance Within the California Sage Scrub of the San Jose Hills**
    Carmel P. Tabush, Dr. Joan M. Leong

30. **Efficacy and Immunological Comparison of Different Adjuvants in gD3pep CALV Liposomes in the BALB/c Mouse Model of Intravaginal HSV-2 Infection**
    Yasmin Elhajmoussa, Edgar Gonzalez, Dr. Jill Adler Moore

31. **The invasion of the red slugs: Vayssierea felis (Collingwood 1881) in the Northeastern Pacific**
    Karina Moreno*, Dr. Ángel A. Valdés*

32. **Doridina: an RNA-Seq analysis**
    Eric Breslau, Carla Stout, Dr. Ángel Valdés

33. **Identification and Characterization of Four Novel Species of Bacteria Isolated from Spacecraft Assembly During NASA's Mars Exploration Rover Mission**
    Jomel Fragante, Jai Lee, Nektary Telep, Sarah Hasel-Kolossa, Daniel Martinez, Dr. Weijen-Lin

34. **Analyzing wing damage among honey bee (Apis mellifera) individuals with different foraging behaviors on watermelon flowers (Citrullus lanatus)**
    Marisol Torres*, Dr. Joan M. Leong

35. **Strategy to Define the Immuno-Modulatory Role of DEC-205 DCs in Limiting WNV Neuroinvasive Disease**
    Sara S. Noori, Johnny E. Rezendes, Dr. Douglas M. Durrant

36. **Sex differences in circadian food anticipatory activity are not altered by individual manipulations of sex hormones or sex chromosome copy number in mice**
    Maya Ogawa-Okada, Antonio Aguayo, Camille Martin, Timothy Huddy, Dr. Andrew Steele

37. **DISTRIBUTION, LOCAL EXTICTIONS, AND LONG-TERM CHANGE WITH COMPARISON TO HISTORICAL RECORDS OF THE ROCKWEED, PELVETIOPSIS CALIFORNICA**
    Robin J. Fales, Dr. Jayson R. Smith

38. **Respones of Juglans californica to extreme drought with respect to slope**
    Anna Jiselle Ongjoco, Albert Schelon, Dr. Edward Bobich

39. **Determining Proximate Composition of Algae Biomass to Assess Nutritional Value and Safety**
    Kristen Bush, Lesly Palacios, Amera Kcheck, Aljona Leka, Dr. Marcia Murry

40. **PURIFICATION OF A CONSERVED P60 FRAGMENT FOR USE AS A TARGET IN THE SELECTION OF APTAMERS FOR THE DETECTION OF LISTERIA**
    Michael A. Garrett*, Dr. Junjun Liu

41. **Analysis of the Biochemical Pathway for Biofuel Production Using Clostridium Strains**
    Ana M. Cortes*, Jacqueline N. Scott*, Jocelyn L. Maragno, Dr. Gregory A. Barding, Dr. Wei-Jen Lin

42. **The effects of ionizing radiation on mutation rates: a meta-analysis**
    Yeraldi Loera, Dr. Andrea Bonisoli-Alquati

43. **Genetic and Bioinformatic Characterization of a New Sulfolobus Turreted Icosahedral Virus (STIV) Variant**
    Michael Overton*, Veneese Brown, Dr. Jamie C. Snyder

44. **Determining Proximate Composition of Algae Biomass to Assess Nutritional Value and Safety**
    Kristen M. Bush, Lesly Palacios, Amera Kcheck, Aljona Leka, Dr. Marcia Murry

45. **Allelopathic impacts of Schinus molle on exotic and native plant communities in southern California**
    David C. Banuelas, Dr. Erin J. Questad, Dr. Edward G. Bobich

46. **The Effects of Nicotine on the Growth and Development of Saccharomyces cerevisiae**
    Lizzeth Acuna, Dr. John Chan

47. **Pseudocryptic speciation of two Hermissenda sea slug species**
    Austin Estores-Pacheco, Dr. Angel Valdes

48. **WILD BEE SEASONAL DIVERSITY AND ABUNDANCE IN URBAN GARDENS PLANTED WITH NATIVE PLANTS**
    Jesus Cepeda, Dr. Joan Leong

49. **Effects of Garlic (Allium sativum) on lipopolysaccharide-stimulated tumor necrosis factor-α secretion is not dependent on RAW264.7 cell density**
    Angel Perez, Benjamin Soto, Dr. Nancy E. Buckley

50. **Understanding flower development and floral organ abscission in Aquilegia and Delphinium**
    Tim Batz, Michael Speck, Summer Blanco, Uriah Sanders, Dr. Bharti Sharma

51. **NEUTRAL RED AND CRESYL VIOLET COUNTERSTAINS IN NITRIGERGIC NADPH-DIAPHORASE STAINED NEURAL AND EPITHELIAL TISSUES**
    Zuhayr M. Khan*, Aayushi A. Mardia, Jordan T. Wong, Dr. Glenn H. Kageyama

52. **Characterization of a Novel Selective Plate for the Differentiation of the Shiga Toxin Producing Escherichia coli Strains**
    Devin Lachner, Liana Ab Samad, Dr. Wei-Jen Lin

Posters 53-61 are located on the wall of building 8

53. **Testing the effects of site selection and artificial shelters on native plant establishments from seed in a degraded coastal sage scrub restoration**
    Marlee L. Antill, Dr. Erin J. Questad

54. **Garlic's (Allium sativum) effects on lipopolysaccharide or Candida albicans stimulated tumor necrosis factor-α secretion from varying macrophage types**
    Benjamin Soto, Dr. Nancy E. Buckley

55. **Speciation in Dondice species from the Western Atlantic**
    Kimberly García-Méndez, Dr. Ángel Valdés

56. **Microbial Safety Assessment of Orange Pomace**
    Carolina K. Maksudi*, Erik S. Dassoff, Dr. Wei-Jen Lin, Dr. Yao Olive Li
    Human Nutrition and Food Science & Microbiology

57. **Adapting lettuce to global warming using physiological genomics to improve nitrogen and water use efficiency**
    Justin Medina, Derrick Dizon, Youngsook You, Dr. David W. Still

Agricultural Research Institute

58. **Enhanced Stability of Nanoemulsions Made with Maillard Conjugates Subjected to an In Vitro Digestion Model, and their Effect on Particle Size and Release of Free Fatty Acids.**
Dena Jones, Dr. Gabriel Davidov-Pardo
Nutrition and Food Science

59. **Maximizing the efficiency of invasive plant control with a phenology-based timing approach to management**
Guy G. Hernandez *, Dr. Erin J. Questad

60. **Use of Pig-Ear-Notching to Evaluate the External Microenvironment of Acute Wounds Using Hypochlorous Acid**
Hailey R. Pontes, Nicholas A. Denny, Dr. Cord M. Brundage
Animal and Veterinary Sciences Department

61. **A Mathematical Model for Integrated Synaptic Potentials at the Medial Nucleus of the Trapezoid Body**
Christopher Buglino, Dr. Glenn Kageyama
Mathematics and Statistics Department

Posters 53-61 are located on the wall of building 8

CHEMISTRY AND BIOCHEMISTRY

62. **Decarbonylation of Ketones with Bidentate N-Heterocyclic Carbene Nickel Complexes**
Justin Cortez, Dr. Chantal Stieber

63. **Synthesis of Nickel Nitrosyl Complexes with Bidentate N-heterocyclic Carbene Ligands**
Zijie Zhang, Alexis Hoxie, Dr. S. Chantal E. Stieber

64. **Design and Optimization of a Low Frequency Raman Microscope at 785 nm**
Sevan Menachekanian, Dr. Timothy Corcoran

65. **Ammonium Heptamolybdate Catalyzed Deoxydehydration of Vicinal Diols to Olefins**
Christine Ann Navarro, Nathan Wagner, Dr. Alex John

66. **GC-MS Scan VS SIM**
Louis Tam, Tiffany Lopez, Philip Lacey, Dustin Schramm, Dr. Gregory A. Barding

67. **Improving Plant Resistance to Powdery Mildew Disease**
Stephanie Mora Garcia*, Ryan Schiefelbein, Paul Larsen, Dr. Gregory A. Barding Jr.

68. **Quantification of Butanol and Butyric Acid by 2D NMR**
    Liliana Cahuas, Amy Tasci, Erica Hummel, Michael Tran, Dr. Gregory A Barding

69. **Scan VS SIM in GC-MS**
    Louis Tam, Tiffany Lopez, Dustin Schramm, Philip Lacey, Dr. Gregory Barding

70. **The synthesis of Diisocyanates-Free Polyurethanes from renewable resources**
    Marcos Ojeda*, Ali Khan, Dr. Michael Page

71. **Analysis of Band Structure and Elemental Composition of Organic, Heterocyclic Crystals**
    Kristopher Erlitz , Dr. Bohdan Schatschneider

72. **Synthesis and Characterization of Vanadium Complexes using X-ray crystallography and Applications for Catalysis**
    Beverly Stretch, Dr. Chantal Stieber

COMPUTER SCIENCE

73. **BRAINWAVE ANALYSIS IN COERCION RESISTANT AUTHENTICATION SYSTEM (CRAS)**
    Khoa D. Tu, Joseph M. Cauthen, Dr. Mohammad I. Husain

74. **Cryptocurrency Forensics**
    Connor Baskin, Karter Rohrer, Rachael Shima, Jyoti Manchanda, Dr. Mohammad Husain

75. **Security in Design of Industrial Control Systems and Critical Infrastructure**
    Sean Corlin, Nate Hom, Dr. Mohammad Husain

76. **S^2 Lab**
    Manvinder Toor, Adrian Hy, Eric Kannampuzha, Hunter Gaukel, Dr. Mohammad Husain

77. **Dijkstra's Algorithm with Microsoft HoloLens**
    Phillip Kasteiner, Taeten Prettyman, David Escobedo, Dr. Mohammad Husain

78. **Penetration Testing for Android Applications with Santoku Linux**
    Ahlam Almusallam, Dr. Mohammad Husain

79. **sing Machine Learning to Predict Autism in children:**
    Hana Alarifi, Dr. Gilbert Young

80. **Integration of Combination and Permutation in Virtual Reality**
    Nam H Huynh, Justin Tsai, Justen Minamitani, Dr. Mohammad Husain

81. **Analysis of Security Vulnerabilities in Open Source Management Systems WordPress, Joomla, Drupal.**
    Rasha Alghofaili, Dr. Mohammad Husain

82. **Sniffing the Connection of a Bluetooth Glucometer**
    Joshua Iwakiri, David Davila, Dr. Mohammad Husain

83. **VR Wildfire Safety**
    Ismail Abbas, Donovan Rush*, Je'Don Carter, Dr. Mohammad Hussain

GEOLOGICAL SCIENCES

84. **Investigation of Shallow Conduits for Carbon Dioxide Emission Using Geophysical Imaging at Horseshoe Lake, Near Mammoth Mountain, California**
    Ashley N. Rivera*, Dr. Jascha Polet

85. **MAPPING, PETROGRAPHIC, AND STEREONET ANALYSIS OF LOST CANYON AND DELKER CANYON WITHIN THE EASTERN SAN GABRIEL MOUNTAINS**
    Homar Colin, Dr. Jonathan Nourse

86. **Surface Measurements of Creep Along the Southern San Andreas Fault at Durmid Hill**
    Katelyn Ruiz*, Karen Alvarez, Dr. Jascha Polet

87. **Fold Analysis of Placerita Canyon Metamorphics**
    Jacob B. Palmer*, Dr. Jon A. Nourse

88. **PRELIMINARY SITE RESPONSE RESULTS OF THE CENTRAL SAN GABRIEL BASIN USING AMBIENT NOISE SPECTRAL RATIO ANALYSIS**
    Rachel M. Kreuziger*, Anisha D. Tyagi, Dr. Jascha Polet

89. **APPLYING MAGNETIC AND VLF ELECTROMAGNETIC TECHNIQUES TO IMAGE GROUNDWATER FLOW AND FAULTS AT SAN ANDREAS OASIS**
    Troy Carson, Drew Faherty, Dr. Jascha Polet

90. **Using Ground Penetrating Radar to Image the Portuguese Bend Landslide**
    Samuel Badillo, Steven Moody, Dr. Jascha Polet

91. **Resistivity and Magnetic Field Measurements for the Detection of Groundwater and Faults in the Northern Dos Palmas Preserve Area**
    Manuel Del Rio*, Drew Faherty, Dr. Jascha Polet

92. **Ground-Based Magnetic Survey Across the San Andreas Fault near Durmid Hill**
Katherine Barragan, Karen Alvarez, Dr. Jascha Polet

93. **Reconnaissance geochemical analysis of the southern Sierra Nevada**
Jessika L. Valenciano, Dr. Nicholas J. Van Buer

KINESIOLOGY AND HEALTH PROMOTION

94. **Motor Development Clinic: An Early Intervention Motor Program**
Sydney Hoang, Dr. Elizabeth Foster

95. **The Effects of Leucine-Enriched Branched-Chain Amino Acid Supplementation on Exercise-Induced Muscle Damage**
Gabriela A. Juache, Adam Osmond, Dean Directo, Michael Wong, Dr. Edward Jo
(**Located on the wall)**

96. **The Effects of Proprietary Resistance Garment Technology on Exercise and Recovery Energy Expenditure**
John Paul M. Arreglado, Samantha Silva, Dr. Edward Jo
(**Located on the wall)**

MATHEMATICS AND STATISTICS

97. **Robot Path Planning**
Jacqueline Alvarez, Brendon H. Chau, Anh D. Nguyen, Jeffrey Yeh, Dr. Jillian Cannons

98. **The Spectrum of the Laplacian on Countable Graphs**
Juan Salinas*, Rachel Anne Gray*, David Krbachian, Dr. Ivan Ventura

99. **Topology of Bivariate Pentanomials**
Ashley De Luna, Christian McRoberts, Malachi Alexander, Dr. Maurice Rojas

PHYSICS AND ASTRONOMY

100. **Characterizing Intermediate-Mass Pre-Main-Sequence Stars Via X-Ray Emission**
Evan Haze Nunez, Dr. Matthew Povich

101. **Stainless Steel Surface Modification using Plasma Treatment**
Sara Margala, Josue Monterrosa, Anthony Oceguera, Dr. Nina Abramzon

102. **Using high resolution Lidar data from SnowEx to characterize the sensitivity of snow depth retrievals to point-cloud density and vegetation**
Victoria M. Patterson, Kat J. Bormann, Jeffrey S. Deems, Thomas H. Painter, Dr. Alex Small
(**Located on the wall)**

103. **An Investigation of Teaching Practices in Introductory Physics Courses**
Kevin T McCondichie, Dr. Homeyra Sadaghiani

104. **A Look Into W3 Complex**
Christopher Mendoza, Aaron Kim, Luis Nunez, Dr. Matthew Povich

105. **Plasma Surface Modification of Ultra-High Molecular Weight Polyethylene to Improve Total Joint Replacement Longevity**
Bianca Cruz, Panik Mordian, Dr. Nina Abramzon

106. **Motion of a Charged Particle Around a Purely Magnetized Black Hole**
Jennifer S. Oum*, Eric A. Espinoza*, Davian J. Harry, Stephen J. Schan, Dr. Shohreh Abdolrahimi

107. **Modeling the Sensitivity Of Coronographic Exoplanet Direct Imaging Methods to an Extraterrestrial Continuous Wave Laser Source**
Christina Vides, Dr. Matthew Povich

108. **Charged Particles Orbiting a Magnetized Charged Black Hole**
Davian J. Harry, Stephen Schan, Jennifer Oum, Eric Espinoza, Dr. Shohreh Abdolrahimi