

## Presentations in Alphabetical Order by Student

|   |  |   |   |
|---|--|---|---|
| O.I - Materials Science<br>214 Steele<br>11:20 - 11:40 AM                         | <b>Anish Agarwal</b><br><i>J. Weldon Green SURF Fellow</i>                     | Exploratory Study of<br>SrCo <sub>0.9</sub> Nb <sub>0.1</sub> O <sub>3.δ</sub> (SCN) as a<br>Candidate Cathode Material<br>for Solid-Oxide Fuel Cells | Sossina M. Haile<br><i>Professor of Materials Science<br/>and Chemical Engineering</i><br>Rob Usiskin<br><i>Graduate Student in Materials<br/>Science</i>                       |
| Q.II - Aeronautics/<br>Mechanical Engineering<br>306 Firestone<br>1:40 - 2:00 PM  | <b>Deeksha Agrawal</b><br><i>Brenda and Louis J. Alpinieri<br/>SURF Fellow</i> | In-Plane Thin Film Lattices:<br>Thermally Stable Mirrors  | Chiara Daraio<br><i>Professor of Aeronautics and<br/>Applied Physics</i><br>Eleftherios Gdoutos<br><i>Graduate Student in<br/>Aeronautics</i>                                   |
| R.I - Engineering and<br>Applied Science<br>206 Thomas<br>10:40 - 11:00 AM        | <b>Sara Ahmed</b><br><i>W.H. Halpenny SURF Fellow</i>                          | Thermal Analysis of the Solar<br>Decathlon House  | Melany L. Hunt<br><i>Professor of Mechanical<br/>Engineering</i>  |
| Poster Session<br>San Pasqual Mall<br>3:45 - 5:00 PM                              | <b>Eli E. Alster</b>   | Mechanical Properties of<br>Nanocrystalline Ni<br>Nanopillars   | Julia R. Greer<br><i>Assistant Professor of Materials<br/>Science</i><br>Jane Lian<br><i>Postdoctoral Scholar in<br/>Materials Science</i>                                      |
| M.I - Electrical Engineering<br>102 Spalding<br>10:20 - 10:40 AM                  | <b>Sadaf Amouzegar</b><br><i>The Aerospace Corporation<br/>SURF Fellow</i>     | Hyperbolic Versus Euclidean<br>Embedding of Real-World<br>Networks  | Babak Hassibi<br><i>Professor of Electrical<br/>Engineering</i><br>Elizabeth A. Bodine-Baron<br><i>Graduate Student in Electrical<br/>Engineering</i>                           |
| I.III - Chemical Engineering<br>237 Baxter<br>2:30 - 2:50 PM                      | <b>Avin D. Andrade</b><br><i>Hannah Bradley SURF Fellow</i>                    | Contribution of Organosulfur<br>Compounds to Atmospheric<br>Aerosol in the United States  | John H. Seinfeld<br><i>Louis E. Nohl Professor and<br/>Professor of Chemical<br/>Engineering</i>  |
| Q.III - Aeronautics/<br>Mechanical Engineering<br>306 Firestone<br>2:30 - 2:50 PM | <b>Hyun Ji Bae</b><br><i>Samuel P. and Frances Krown<br/>SURF Fellow</i>       | Analysis of Interpolation<br>Schemes in the<br>Quasicontinuum Method  | Michael Ortiz<br><i>Doty and Dick Hayman<br/>Professor of Aeronautics and<br/>Mechanical Engineering</i><br>Malena I. Español<br><i>Postdoctoral Scholar in<br/>Aeronautics</i> |
| W.III - Physics/Astronomy<br>106 Spalding<br>2:30 - 2:50 PM                       | <b>Aniruddha A. Bapat</b>  | Clamping Losses in<br>Nanomechanical Resonators   | Michael L. Roukes<br><i>Professor of Physics, Applied<br/>Physics, and Bioengineering</i><br>Luis G. Villanueva<br><i>Postdoctoral Scholar in Physics</i>                       |

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| W.I - Physics/Astronomy<br>106 Spalding<br>10:20 - 10:40 AM                | <b><i>Nathaniel J. Baskin</i></b><br><i>Richter Scholar</i>                                     | Cryogenic Noise<br>Measurements of Amplifiers<br>for the Q/U Imaging<br>Experiment (QUIET)<br>Phase II | Anthony C. Readhead<br><i>Barbara and Stanley R. Rawen,<br/>Jr., Professor of Astronomy</i><br>Kieran A. Cleary<br><i>Senior Research Fellow in<br/>Astronomy</i>                                       |
| U.III - Astronomy<br>101 Guggenheim<br>3:30 - 3:50 PM                      | <b><i>Juliette C. Becker</i></b>  | Spectra Simulation for<br>ULXs NGC 1313 X-1 and<br>NGC 1313 X-2  | Fiona A. Harrison<br><i>Professor of Physics and<br/>Astronomy</i><br>Kristin K. Madsen<br><i>Postdoctoral Scholar in Physics</i>   |
| V.II - Mathematics<br>114 Steele<br>1:20 - 1:40 PM                         | <b><i>Dori Bejleri</i></b>  | Feynman Graphs and the<br>Field With One Element   | Matilde Marcolli<br><i>Professor of Mathematics</i>   |
| W.III - Physics/Astronomy<br>106 Spalding<br>3:30 - 3:50 PM                | <b><i>Tanvir Ahamed Bhuyain</i></b><br><i>Edward C. and Alice Stone<br/>SURF Fellow</i>         | Bound States of Fourth<br>Generation Quarks and<br>Antiquarks`   | Mark B. Wise<br><i>John A. McCone Professor of<br/>High Energy Physics</i>  |
| D.I - Biology<br>127 Baxter<br>11:00 - 11:20 AM                            | <b><i>Evan R. Biggs</i></b><br><i>Eric T. Fung and Julie A.<br/>Buckley SURF Fellow</i>         | Identification of Endogenous<br>Inflammatory Cells in the<br>Mammalian Hypothalamus                    | Daniel L. Marks<br><i>Associate Professor of Pediatric<br/>Endocrinology, Oregon Health<br/>&amp; Science University</i><br>Ellen Rothenberg<br><i>Albert Billings Ruddock<br/>Professor of Biology</i> |
| S.I - Geological and<br>Planetary Sciences<br>142 Keck<br>11:20 - 11:40 AM | <b><i>Suzanne K. Birner</i></b><br><i>Dr. George R. Rossman<br/>SURF Fellow</i>                 | Insight Into the Growth of<br>Garnet Porphyroblasts<br>Through Isotopic Analysis of<br>Iron            | Nicolas Dauphas<br><i>Associate Professor of<br/>Geophysical Sciences,<br/>University of Chicago</i><br>Paul D. Asimow<br><i>Professor of Geology and<br/>Geochemistry</i>                              |
| L.I - Computing<br>100 Powell-Booth<br>11:00 - 11:20 AM                    | <b><i>Daniel Christopher E. Blado</i></b><br><i>Samuel P. and Frances Krown<br/>SURF Fellow</i> | Computational Study of<br>Solution Accuracy in Finite<br>Volume Methods Using<br>OpenFOAM              | Dan I. Meiron<br><i>Fletcher Jones Professor of<br/>Aeronautics and Applied and<br/>Computational Mathematics</i>   |

B.I - Biology  
25 Baxter  
10:40 - 11:00 AM

**Michelle E. Bobrow**

Gene Expression Levels as  
Markers of Irradiation  
Damage to the Brain

Robert J. Brown  
*Clinical Instructor of  
Pediatrics, Children's Hospital  
Los Angeles*  
David Warburton  
*Professor of Developmental  
Biology and Regenerative  
Medicine, Children's Hospital  
Los Angeles*  
Marianne Bronner-Fraser  
*Albert Billings Ruddock  
Professor of Biology*

P.II - Materials Science/  
Applied Physics  
102 Steele  
1:40 - 2:00 PM

**Carly M. Bond**  
*Caltech-GIST Exchange*

The Characterization of  
Carbon Dots, Gold Nanorods,  
and Graphene as  
Components of Photothermal  
Tumor Treatment

Giyoong Tae  
*Professor of Materials Science  
and Engineering, Gwangju  
Institute of Science and  
Technology*

Q.III - Aeronautics/  
Mechanical Engineering  
306 Firestone  
3:30 - 3:50 PM

**Liana Braun**  
*Mary P. and Dean C. Daily  
SURF Fellow*

Multiple Mirror Space  
Telescope Arrays: A Study of  
Imaging Applications and the  
Determination of Deformable  
Mirror Shape From Optical  
Wave Measurements

Sergio Pellegrino  
*Joyce and Kent Kresa Professor  
of Aeronautics and Professor  
Civil Engineering; Senior  
Research Scientist, JPL*  
Keith Patterson  
*Graduate Student in  
Aeronautics*

G.I - Chemistry  
218 Baxter  
10:20 - 10:40 AM

**Reuben J. Britto**  
*David S. Koons SURF Fellow*

Characterizing the Properties  
of Copper in Silicon  
Microwire Arrays

Nathan S. Lewis  
*George L. Argyros Professor and  
Professor of Chemistry*  
Emily Warren  
*Graduate Student in Chemical  
Engineering*

K.II - Bioengineering/  
Chemical Engineering  
306 Thomas  
1:00 - 1:20 PM

**Julia A. Brown**  
*Richter Scholar*

Bioremediation of Endocrine  
Disruptors: Isolation of an  
Endocrine-Disruptor-  
Degrading Bacterium

Richard M. Murray  
*Thomas E. and Doris Everhart  
Professor of Control and  
Dynamical Systems and  
Bioengineering*  
Joseph T. Meyerowitz  
*Graduate Student in  
Biochemistry*  
Emmanuel Lorenzo C.  
de Los Santos  
*Graduate Student in  
Bioengineering*  
Nathaniel R. Glasser  
*Graduate Student in  
Biochemistry*

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|---|--|--|---|
| X.II - Physics<br>113 Spalding<br>2:00 - 2:20 PM                          | <b><i>Nina B. Budaeva</i></b><br><i>David L. Goodstein</i><br><i>SURF Fellow</i>                 | Chemical Effects of Ice<br>Crystal Growth  | Kenneth G. Libbrecht<br><i>Professor of Physics</i>   |
| B.II - Biology<br>25 Baxter<br>1:00 - 1:20 PM                             | <b><i>Pallavi Bugga</i></b><br><i>Saul and Joan Cogen</i><br><i>Memorial SURF Fellow</i>         | Bach 1 Mediates Dendritic<br>Cell and Macrophage<br>Development to Regulate<br>Protective Immunity and<br>Immune Function    | David Baltimore<br><i>Robert Andrews Millikan</i><br><i>Professor of Biology; Nobel</i><br><i>Laureate; President Emeritus</i><br>Alex S. So<br><i>Postdoctoral Scholar in Biology</i>  |
| S.II - Geological and<br>Planetary Sciences<br>142 Keck<br>1:20 - 1:40 PM | <b><i>Peter B. Buhler</i></b>  | Meter-Scale Evolution of the<br>Martian Residual South Polar<br>Cap  | James W. Head<br><i>Professor of Geology, Brown</i><br><i>University</i><br>Caleb I. Fassett<br><i>Postdoctoral Research Associate</i><br><i>in Geology, Brown University</i><br>Andrew P. Ingersoll<br><i>Earle C. Anthony Professor of</i><br><i>Planetary Science</i>  |
| U.II - Astronomy<br>101 Guggenheim<br>2:00 - 2:20 PM                      | <b><i>Iryna Butsky</i></b>   | Properties of Neutron Stars,<br>Their Pulsational Modes, and<br>Gravitational Wave Emission                                  | Christian D. Ott<br><i>Assistant Professor of</i><br><i>Theoretical Astrophysics</i><br>Jeff D. Kaplan<br><i>Graduate Student in Physics,</i><br><i>Mathematics, and Astronomy</i>  |
| A.I - Biology<br>19 Baxter<br>11:00 - 11:20 AM                            | <b><i>Yi Cai</i></b><br><i>Amgen Scholar</i>   | Traffic Jam piRNA<br>Localization in <i>Drosophila</i><br>Ovarian Somatic Cells  | Alexei Aravin<br><i>Assistant Professor of Biology</i><br>Edward M. Perkins<br><i>Graduate Student in Biology</i>   |
| L.I - Computing<br>100 Powell-Booth<br>10:20 - 10:40 AM                   | <b><i>Alejandro U. Carbonara</i></b><br><i>Samuel P. and Frances Krown</i><br><i>SURF Fellow</i> | Cell Phone Earthquake<br>Detection: Small Memory<br>Variations on Expectation<br>Maximization for Gaussian<br>Mixture Models | R. Andreas Krause<br><i>Assistant Professor of Computer</i><br><i>Science</i><br>Matthew N. Faulkner<br><i>Graduate Student in Computer</i><br><i>Science</i>   |
| I.I - Chemical Engineering<br>237 Baxter<br>11:20 - 11:40 AM              | <b><i>Jacqueline Chan</i></b><br><i>Rose Hills Foundation</i><br><i>SURF Fellow</i>              | Forming a Porous Scaffold<br>With Clover-Leaf Shaped<br>Microgels for Tissue<br>Engineering Formulations                     | David A. Tirrell<br><i>Ross McCollum-William H.</i><br><i>Corcoran Professor and</i><br><i>Professor of Chemistry and</i><br><i>Chemical Engineering</i><br>Amy Fu<br><i>Graduate Student in Chemical</i><br><i>Engineering</i><br>Lawrence J. Dooling<br><i>Graduate Student in Chemical</i><br><i>Engineering</i> |

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| G.III - Chemistry<br>218 Baxter<br>2:30 - 2:50 PM                             | <b><i>Sandhya Chandrasekaran</i></b><br><i>Dr. Terry Cole SURF Fellow</i> | Fluorescent Double Labeling<br>of the Signal Recognition<br>Particle to Study Interdomain<br>Interaction                   | Shu-ou Shan<br><i>Assistant Professor of Chemistry</i><br>Ishu Saraogi<br><i>Postdoctoral Scholar in<br/>Chemistry</i>  |
| J.I - Bioengineering<br>301 Thomas<br>10:20 - 10:40 AM                        | <b><i>Arjun Chandrasekhar</i></b>   | Simulac: A Stochastic<br>Simulator for Modeling<br>Biomolecular Circuits   | Richard M. Murray<br><i>Thomas E. and Doris Everhart<br/>Professor of Control and<br/>Dynamical Systems and<br/>Bioengineering</i><br>Emmanuel Lorenzo C.<br>de Los Santos<br><i>Graduate Student in<br/>Bioengineering</i> |
| F.I - Chemistry<br>210 Baxter<br>10:40 - 11:00 AM                             | <b><i>Christine H. Chang</i></b>  | Thioester-Functionalized<br>Silica Microspheres as<br>Substrates for Covalent<br>Immobilization                            | Harry B. Gray<br><i>Arnold O. Beckman Professor of<br/>Chemistry</i><br>Paul J. Bracher<br><i>Postdoctoral Scholar in<br/>Chemistry</i>   |
| B.I - Biology<br>25 Baxter<br>11:00 - 11:20 AM                                | <b><i>James Chang</i></b><br><i>Bristol-Myers SURF Fellow</i>             | Identification of<br><i>Cis</i> -regulatory Regions in<br><i>L. variegates</i> DNA   | R. Andrew Cameron<br><i>Senior Research Associate in<br/>Biology</i>  |
| W.II - Physics/Astronomy<br>106 Spalding<br>2:00 - 2:20 PM                    | <b><i>Saptarshi Chaudhuri</i></b>   | Modeling Nonlinear<br>Response in a Dispersion-<br>Engineered Traveling-Wave<br>Kinetic Inductance<br>Parametric Amplifier | Jonas Zmuidzinas<br><i>Professor of Physics</i>   |
| Poster Session<br>San Pasqual Mall<br>3:45 - 5:00 PM                          | <b><i>Chih-Ping Chen</i></b>  | Patterns of Nanog Sub-State<br>Switching in Single Mouse<br>Embryonic Stem Cells   | Michael B. Elowitz<br><i>Professor of Biology and<br/>Bioengineering; Investigator,<br/>Howard Hughes Medical<br/>Institute</i><br>John Yong<br><i>Graduate Student in Biology</i>  |
| P.I - Materials Science/<br>Applied Physics<br>102 Steele<br>10:20 - 10:40 AM | <b><i>Clare H. Chen</i></b>   | Doped Polycrystalline Silicon<br>Templates for Epitaxial<br>Crystalline Thin-Film Solar<br>Cells                           | Harry A. Atwater<br><i>Howard Hughes Professor and<br/>Professor of Applied Physics<br/>and Materials Science</i><br>Michael G. Deceglie<br><i>Graduate Student in Applied<br/>Physics</i>                                  |

A.III - Biology  
19 Baxter  
2:50 - 3:10 PM

**John L. Chen**  
*Rose Hills Foundation  
SURF Fellow*

Establishing Ground Truths  
for Automated Monitoring  
and Analysis of Aggressive  
Behavior in Female *Drosophila*

David J. Anderson  
*Seymour Benzer Professor of  
Biology; Investigator, Howard  
Hughes Medical Institute*  
Rod Lim  
*Graduate Student in Biology*

E.II - Biology  
128 Baxter  
1:00 - 1:20 PM

**Rebecca P. Chen**  
*Richter Scholar*

Identifying Genes Involved in  
FGF-Dependent Cell  
Migrations in *Drosophila*

Angelike Stathopoulos  
*Assistant Professor of Biology*  
Young-Kyung Bae  
*Postdoctoral Scholar in Biology*

N.I - Electrical Engineering  
120 Powell-Booth  
11:00 - 11:20 AM

**Samson Chen**  
*Larson Scholar*

Microfluidic Polymerase  
Chain Reaction (PCR)  
Platform for Pathogen  
Detection

Axel Scherer  
*Bernard A. Neches Professor of  
Electrical Engineering, Applied  
Physics, and Physics*  
Aditya Rajagopal  
*Graduate Student in Electrical  
Engineering*

A.II - Biology  
19 Baxter  
1:00 - 1:20 PM

**Victor E. Chen**

Stereological Sampling of von  
Economo Neurons (VENs) in  
Aging Human Brain Tissue

John M. Allman  
*Frank P. Hixon Professor of  
Neurobiology*  
Soyoung Park  
*Graduate Student in  
Computation and Neural  
Systems*

C.III - Biology  
125 Baxter  
2:30 - 2:50 PM

**Wesley G. Chen**

Identifying a Protein Lattice  
on the Outer Spore  
Membrane in *Acetone-*  
*longum*

Grant J. Jensen  
*Professor of Biology;  
Investigator, Howard Hughes  
Medical Institute*  
Elitza Tocheva  
*Postdoctoral Scholar in Biology*

U.I - Astronomy  
101 Guggenheim  
10:00 - 10:20 AM

**Yutong Chen**

Light Curve Classification of  
Time-Variable Astronomical  
Phenomena

S. George Djorgovski  
*Professor of Astronomy*  
Ashish Mahabal  
*Staff Scientist in  
Computational Astronomy*

K.II - Bioengineering/  
Chemical Engineering  
306 Thomas  
2:00 - 2:20 PM

***Puikei Cheng***

Using *E. coli* to Bioremediate  
Endocrine Disrupting  
Chemicals

Richard M. Murray  
*Thomas E. and Doris Everhart  
Professor of Control and  
Dynamical Systems and  
Bioengineering*  
Joseph T. Meyerowitz  
*Graduate Student in  
Biochemistry*  
Emmanuel Lorenzo C.  
de Los Santos  
*Graduate Student in  
Bioengineering*  
Nathaniel R. Glasser  
*Graduate Student in  
Biochemistry*

Poster Session  
San Pasqual Mall  
3:45 - 5:00 PM

***Sandeep P. Chinchali***

Towards the Use of Formal  
Methods for Dexterous  
Robotic Manipulation

Joel W. Burdick  
*Professor of Mechanical  
Engineering and  
Bioengineering*  
Thomas F. Allen  
*Graduate Student in  
Mechanical Engineering*

D.I - Biology  
127 Baxter  
10:20 - 10:40 AM

***Margaret J. Chiu***  
*Amgen Scholar*

Identification and  
Characterization of Genes  
Involved in the Control of  
Stem Cell Populations in  
Plant Shoot Apical Meristems

Elliot M. Meyerowitz  
*George W. Beadle Professor of  
Biology*  
Yun Zhou  
*Postdoctoral Scholar in Biology*

V.I - Mathematics  
114 Steele  
10:00 - 10:20 AM

***Daniel M. Chun***

Determination of Simple  
3-Dimensional Abelian  
Surfaces With Complex  
Multiplication With Field of  
Moduli as  $\mathbb{Q}$

Matthias Flach  
*Professor of Mathematics*

Q.I - Aeronautics/  
Mechanical Engineering  
306 Firestone  
10:20 - 10:40 AM

***Emmet M. Cleary***

Predicting Lift-Off Height in  
Turbulent Lifted Flames  
Using Stochastic Flamelets

Guillaume Blanquart  
*Assistant Professor of  
Mechanical Engineering*

Poster Session  
San Pasqual Mall  
3:45 - 5:00 PM

***Connor W. Coley***  
*Richter Scholar*

Using Rubredoxin From  
*Pyrococcus furiosus* as a Model  
for Determining Oxidation  
States of Individual Fe Atoms  
in Nitrogenase as a Means for  
Probing the Mechanism of  
Biological Nitrogen  
Reduction

Douglas C. Rees  
*Roscoe Gilkey Dickinson  
Professor of Chemistry;  
Investigator, Howard Hughes  
Medical Institute*  
Limei Zhang  
*Postdoctoral Scholar in  
Chemistry*

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| G.II - Chemistry<br>218 Baxter<br>1:40 - 2:00 PM                       | <b>Nadine P. Currie</b>   | Enantioselective Friedel-Crafts Alkylation Reaction Substrate Scope                            | Sarah E. Reisman<br><i>Assistant Professor of Chemistry</i><br>Lindsay M. Repka<br><i>Graduate Student in Chemistry</i>   |
| V.III - Mathematics<br>114 Steele<br>2:50 - 3:10 PM                    | <b>Megan R. Cutrofello</b>  | List-Coloring Graphs Fixing a Particular Union   | Richard M. Wilson<br><i>Professor of Mathematics</i>  |
| L.I - Computing<br>100 Powell-Booth<br>10:40 - 11:00 AM                | <b>Wei Dai</b><br><i>Kiyo and Eiko Tomiyasu</i><br><i>SURF Scholar</i>                | A Smartphone That Learns: Adaptive Earthquake Detection on Community-Based Instruments         | R. Andreas Krause<br><i>Assistant Professor of Computer Science</i><br>Matthew N. Faulkner<br><i>Graduate Student in Computer Science</i>   |
| S.II - Geological and Planetary Sciences<br>142 Keck<br>1:00 - 1:20 PM | <b>Mackenzie D. Day</b><br><i>Karen and James Cutts</i><br><i>SURF Fellow</i>         | Small Crater Analysis of the Mars Science Laboratory Landing Site                              | John P. Grotzinger<br><i>Fletcher Jones Professor of Geology</i>  |
| E.II - Biology<br>128 Baxter<br>1:40 - 2:00 PM                         | <b>Anik A. Debnath</b><br><i>Northern California Associates</i><br><i>SURF Fellow</i> | Multi-Phase Coexistence in Fatty Acid Membrane Systems   | Jack Szostak<br><i>Professor of Genetics, Massachusetts General Hospital and Harvard Medical School</i><br>Itay Budin<br><i>Research Assistant in Molecular and Cellular Biology, Harvard University</i><br>Rob B. Phillips<br><i>Professor of Applied Physics and Mechanical Engineering</i> |
| O.I - Materials Science<br>214 Steele<br>10:20 - 10:40 AM              | <b>Rachel E. Deghueue</b>   | Electrochemical Characterization of Model Thin-Film Metal Electrodes for Solid Acid Fuel Cells | Sossina M. Haile<br><i>Professor of Materials Science and Chemical Engineering</i><br>Arón Varga<br><i>Graduate Student in Materials Science</i>  |
| V.III - Mathematics<br>114 Steele<br>3:10 - 3:30 PM                    | <b>Colleen R. Delaney</b><br><i>James H. Milovich</i><br><i>SURF Fellow</i>           | The Hopf Algebra of Rooted Trees With Natural Growth by Fan Graphs                             | Susama Agarwala<br><i>Harry Bateman Research Instructor in Mathematics</i>  |

B.III - Biology  
25 Baxter  
3:10 - 3:30 PM

**Neal B. Desai**

Characterizing and Investigating Spatio-Temporal Expression of Genes Critical to *Strongylocentrotus purpuratus* Coelomic Pouch Development in *Eucidaris tribuloides*, a Distantly Related Cidaroid Sea Urchin

Eric H. Davidson  
*Norman Chandler Professor of Cell Biology*  
Eric M. Erkenbrack  
*Graduate Student in Biology*

P.II - Materials Science/  
Applied Physics  
102 Steele  
2:00 - 2:20 PM

**Marino Di Franco**  
*Caltech-GIST Exchange*

Performance Optimization of Large-Area Bulk Heterojunction Solar Cells

Kwanghee Lee  
*Professor of Materials Science and Engineering, Gwangju Institute of Science and Technology*  
Sooncheol Kwon  
*Research Assistant in Materials Science and Engineering, Gwangju Institute of Science and Technology*

S.I - Geological and Planetary Sciences  
142 Keck  
10:20 - 10:40 AM

**Matthew R. Diamond**

Magnetostratigraphy of the Late Cretaceous Rocks in the James Ross Basin, Antarctica, to Investigate the K/Pg Mass Extinction

Joseph L. Kirschvink  
*Nico and Marilyn Van Wingen Professor of Geobiology*  
Timothy D. Raub  
*Postdoctoral Scholar in Geology*  
Sarah Slotznick  
*Graduate Student in Geology*

D.I - Biology  
127 Baxter  
10:00 - 10:20 AM

**Michael G. Dieterle**  
*Richard T. Jones SURF Fellow*

Localization of Lipid Biosynthesis Enzymes in the Asymmetrically Dividing Bacterium *Rhodospseudomonas palustris* Utilizing Fluorescent-Tagged Proteins

Dianne K. Newman  
*Professor of Geobiology and Professor of Biology; Investigator, Howard Hughes Medical Institute*  
David M. Doughty  
*Postdoctoral Scholar in Biology*

A.II - Biology  
19 Baxter  
1:40 - 2:00 PM

**Monisha Dilip**

Expression of Neuromedin B in the Anterior Cingulate Cortex and Fronto-Insular Cortex

John M. Allman  
*Frank P. Hixon Professor of Neurobiology*  
Nicole A. Tetreault  
*Graduate Student in Biology*

E.III - Biology  
128 Baxter  
2:50 - 3:10 PM

**Race E. DiLoreto**

Identification and Isolation of Novel Long Noncoding RNAs Involved in Myogenesis

Barbara J. Wold  
*Bren Professor of Molecular Biology*  
Georgi K. Marinov  
*Graduate Student in Biology*

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| M.II - Electrical Engineering<br>102 Spalding<br>2:00 - 2:20 PM                  | <b>Hyung Wan Do</b><br><i>Richter Scholar</i>   | Test Setup to Measure<br>Properties of the Crystalline<br>Lens   | Yu-Chong Tai<br><i>Professor of Electrical<br/>Engineering and Mechanical<br/>Engineering</i><br>Charles M. DeBoer<br><i>Graduate Student in Electrical<br/>Engineering</i>                                |
| S.I - Geological and<br>Planetary Sciences<br>142 Keck<br>10:40 - 11:00 AM       | <b>Sabrina C. Dodgin</b>  | Analysis of Plant Wax $\delta D$ to<br>Evaluate the Conservation of<br>Rainfall $\delta D$ in Higher Plant<br>Fatty Acids in the Indonesian<br>Archipelago | Alex L. Sessions<br><i>Professor of Geobiology</i><br>Eva M. Niedermeyer<br><i>Postdoctoral Scholar in<br/>Geobiology</i>  |
| M.I - Electrical Engineering<br>102 Spalding<br>10:00 - 10:20 AM                 | <b>Yishun Dong</b>  | Performance of Linear Error<br>Correcting Codes With<br>Anytime Reliability  | Babak Hassibi<br><i>Professor of Electrical<br/>Engineering</i><br>Ravi Teja T. Sukhavasi<br><i>Graduate Student in Electrical<br/>Engineering</i>   |
| L.II - Computing<br>100 Powell-Booth<br>1:20 - 1:40 PM                           | <b>Shayan Doroudi</b><br><i>Rose Hills Foundation<br/>SURF Fellow</i>                 | Deterministically<br>Reorganizing DNA on a<br>Nanoscale DNA Surface<br>Using Random Walking  | Erik Winfree<br><i>Professor of Computer Science,<br/>Computation and Neural<br/>Systems, and Bioengineering</i><br>Niranjan Srinivas<br><i>Graduate Student in<br/>Computation and Neural<br/>Systems</i> |
| V.I - Mathematics<br>114 Steele<br>11:00 - 11:20 AM                              | <b>Samuel S. Elder</b>  | Graph Theoretic Approaches<br>to the Static Membership<br>Problem  | Niranjan Balachandran<br><i>Harry Bateman Research<br/>Instructor of Mathematics</i>   |
| V.II - Mathematics<br>114 Steele<br>1:40 - 2:00 PM                               | <b>Christopher E. Estrada</b>   | Low-Energy Limits of<br>Noncommutative Calabi-Yau<br>Manifolds   | Matilde Marcolli<br><i>Professor of Mathematics</i>  |
| Q.II - Aeronautics/<br>Mechanical Engineering<br>306 Firestone<br>1:00 - 1:20 PM | <b>Yuyang Fan</b><br><i>Toshi Kubota Aeronautics<br/>SURF Fellow</i>                  | Development and Testing of<br>a Multifunctional Computer<br>Fan Wind Tunnel for Wind<br>Energy Applications  | Mory Gharib<br><i>Hans W. Liepmann Professor<br/>of Aeronautics and Professor of<br/>Bioinspired Engineering</i><br>Julia T. Cosse<br><i>Graduate Student in<br/>Aeronautics</i>                           |
| Poster Session<br>San Pasqual Mall<br>3:45 - 5:00 PM                             | <b>Alex Fandrianto</b><br><i>Captain Pradeep B. Suklikar<br/>Memorial SURF Fellow</i> | Telemedicine and the<br>10-Cent Checkup  | K. Mani Chandy<br><i>Simon Ramo Professor and<br/>Professor of Computer Science</i><br>Julian J. Bunn<br><i>Member of the Professional<br/>Staff in CACR</i>   |

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| M.III - Electrical Engineering<br>102 Spalding<br>3:10 - 3:30 PM                  | <b>Kelvin C. Fang</b><br><i>Chung Ip Wing-Wah<br/>Memorial SURF Fellow</i> | Thermal Bubble Generation<br>for Flexible Microfluidics<br>Control                                     | Changhuei Yang<br><i>Professor of Electrical<br/>Engineering and<br/>Bioengineering</i>  |
| H.III - Chemistry/<br>Chemical Engineering<br>228 Baxter<br>3:10 - 3:30 PM        | <b>Chi L. Feng</b>   | Study of Hypervelocity<br>Impacts Using Large-Scale,<br>Long-Term Molecular<br>Dynamics                | William A. Goddard III<br><i>Charles and Mary Ferkel<br/>Professor of Chemistry,<br/>Materials Science, and Applied<br/>Physics</i><br>Andres Jaramillo-Botero<br><i>Staff Scientist in Chemistry</i>  |
| Q.I - Aeronautics/<br>Mechanical Engineering<br>306 Firestone<br>10:00 - 10:20 AM | <b>Joshua W. Fromm</b><br><i>Richter Scholar</i>                           | Multiphase Flow in the<br>Presence of Hydrophilic and<br>Hydrophobic Surfaces                          | Guillaume Blanquart<br><i>Assistant Professor of<br/>Mechanical Engineering</i><br>Gerry V. Della Rocca<br><i>Graduate Student in<br/>Mechanical Engineering</i>   |
| B.II - Biology<br>25 Baxter<br>1:20 - 1:40 PM                                     | <b>Prakriti Gaba</b><br><i>Ray Owen SURF Fellow</i>                        | Building Vectors to Test the<br>Roles of miR-146a Targets<br>Traf6, Irak1, and Stat1 in<br>HSC Biology | David Baltimore<br><i>Robert Andrews Millikan<br/>Professor of Biology; Nobel<br/>Laureate; President Emeritus</i><br>Ryan M. O'Connell<br><i>Postdoctoral Scholar in Biology</i>  |
| Poster Session<br>San Pasqual Mall<br>3:45 - 5:00 PM                              | <b>Meng Ge</b>   | Symmetries of Unrooted<br>Polygons and Multiple<br>Logarithms  | Susama Agarwala<br><i>Harry Bateman Research<br/>Instructor in Mathematics</i>   |
| J.II - Bioengineering<br>301 Thomas<br>1:00 - 1:20 PM                             | <b>Tianjia J. Ge</b><br><i>Richter Scholar</i>                             | Conditional RNA<br>Interference in a Mammalian<br>Cell-Free System                                     | Niles A. Pierce<br><i>Professor of Applied and<br/>Computational Mathematics<br/>and Bioengineering</i><br>Lisa Hochrein<br><i>Graduate Student in Chemical<br/>Engineering</i><br>Ma'ayan Schwarzkopf<br><i>Graduate Student in Biology</i> |
| B.II - Biology<br>25 Baxter<br>1:40 - 2:00 PM                                     | <b>Marvin H. Gee</b><br><i>Amgen Scholar</i>                               | Improving Anti-Tumor<br>Immunity by Engineering<br>T Cell Receptors to Prevent<br>Mispairing           | David Baltimore<br><i>Robert Andrews Millikan<br/>Professor of Biology; Nobel<br/>Laureate; President Emeritus</i><br>Michael T. Bethune<br><i>Postdoctoral Scholar in Biology</i>   |

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| W.II - Physics/Astronomy<br>106 Spalding<br>1:00 - 1:20 PM   | <b>Alexandra T. Georgieva</b>   | Exploring Optimal<br>Electromagnetic Follow-up<br>Campaigns for Inspiralling<br>Neutron Star Binaries<br>Detected Using Ground-<br>Based Gravitational-Wave<br>Detectors | Thomas A. Prince<br><i>Professor of Physics</i><br>Samaya Nissanke<br><i>Member of the Technical Staff,</i><br><i>JPL</i>   |
| I.III - Chemical Engineering<br>237 Baxter<br>3:10 - 3:30 PM | <b>Anirban Ghosh</b><br><i>Ernest R. Roberts SURF Fellow</i>                    | Effect of Globally Imposed<br>Reactant Gradients on<br>Osmotic Propulsion  | John F. Brady<br><i>Chevron Professor of Chemical</i><br><i>Engineering and Professor of</i><br><i>Mechanical Engineering</i><br>Nicholas J. Hoh<br><i>Graduate Student in Chemical</i><br><i>Engineering</i>   |
| X.II - Physics<br>113 Spalding<br>1:00 - 1:20 PM             | <b>Lauren A. Gilbert</b>  | Barium Tagging for the<br>Enriched Xenon Observatory   | Martin Breidenbach<br><i>Professor, SLAC Particle</i><br><i>Physics and Astrophysics,</i><br><i>SLAC National Accelerator</i><br><i>Laboratory</i><br>Liang Yang<br><i>Research Associate, SLAC</i><br><i>National Accelerator</i><br><i>Laboratory</i><br>Maria Spiropulu<br><i>Associate Professor of Physics</i> |
| X.II - Physics<br>113 Spalding<br>1:40 - 2:00 PM             | <b>Samuel G. Goldberg</b><br><i>Rose Hills Foundation</i><br><i>SURF Fellow</i> | Coherence of Majorana<br>Qubit in a Topological<br>Superconducting Wire<br>Undergoing a Phase Slip<br>Event  | Gil Refael<br><i>Professor of Theoretical Physics</i><br>Doron Bergman<br><i>Sherman Fairchild Postdoctoral</i><br><i>Scholar in Theoretical Science</i>  |
| X.I - Physics<br>113 Spalding<br>11:20 - 11:40 AM            | <b>Chen Gong</b>  | Thermometry of He <sup>3</sup> Fridge  | Keith C. Schwab<br><i>Professor of Applied Physics</i>  |
| O.I - Materials Science<br>214 Steele<br>11:00 - 11:20 AM    | <b>Kevin L. Gu</b>  | Metal-Decorated,<br>Nanostructured Sm <sub>0.2</sub> Ce <sub>0.8</sub> O <sub>2.6</sub><br>Thin Films by PLD as High-<br>Performance Anodes                              | Sossina M. Haile<br><i>Professor of Materials Science</i><br><i>and Chemical Engineering</i><br>WooChul Jung<br><i>Postdoctoral Scholar in Applied</i><br><i>Physics and Materials Science</i>  |

Poster Session  
San Pasqual Mall  
3:45 - 5:00 PM

**Mengyu Guan**  
*Caltech-GIST Exchange*

Proton Exchange Membranes  
With Through-Plane Aligned  
Ion Conducting Channels:  
A Study of Ionic and Electric  
Conductivity

Seung-Hyeon Moon  
*Professor of Environmental  
Science and Engineering,  
Gwangju Institute of Science  
and Technology*  
Sung-Hyun Yun  
*Graduate Student in  
Environmental Science and  
Engineering, Gwangju  
Institute of Science and  
Technology*

F.II - Chemistry  
210 Baxter  
1:40 - 2:00 PM

**Trisha Guchait**

Studying the ABCB7  
Transport Protein From  
Bacteria

Douglas C. Rees  
*Roscoe Gilkey Dickinson  
Professor of Chemistry;  
Investigator, Howard Hughes  
Medical Institute*  
Jens Kaiser  
*Research Specialist in  
Chemistry*

H.I - Chemistry/  
Chemical Engineering  
228 Baxter  
10:20 - 10:40 AM

**Ashley Z. Guo**

Design of a Program for  
Shear Induced Polymer  
Crystallization Control

Richard C. Flagan  
*Irma and Ross McCollum-  
William H. Corcoran Professor  
of Chemical Engineering and  
Professor of Environmental  
Science and Engineering*  
Ruoyu Zhang  
*Postdoctoral Scholar in  
Chemical Engineering*  
Xerxes Lopez-Iglesias  
*Graduate Student in Physics*

O.III - Materials Science  
214 Steele  
2:50 - 3:10 PM

**Karan Gupta**  
*Dr. David G. Goodwin  
SURF Fellow*

Iron Based Bulk Amorphous  
Alloy Sample Preparation for  
Annealing in Magnetic Field

Marios D. Demetriou  
*Senior Research Fellow in  
Materials Science*

O.II - Materials Science  
214 Steele  
1:20 - 1:40 PM

**Jeff N. Han**

Electrical-Mechanical  
Properties of Graphene  
Cantilever Structures

Julia R. Greer  
*Assistant Professor of Materials  
Science*  
Mingyuan Huang  
*Postdoctoral Scholar in  
Materials Science*

F.III - Chemistry  
210 Baxter  
2:30 - 2:50 PM

**Matthew P. Harrigan**  
*Richter Scholar*

*Ab initio* Quantum  
Computation of THz  
Vibrational Modes

Geoffrey A. Blake  
*Professor of Cosmochemistry  
and Planetary Sciences and  
Professor of Chemistry*  
Matthew J. Kelley  
*Graduate Student in Chemistry*

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|--|---|---|---|
| O.III - Materials Science<br>214 Steele<br>2:30 - 2:50 PM              | <b>Thomas N. Harris</b>   | Optimizing Forging of Bulk Metallic Glasses Utilizing Rapid Discharge Capacitive Heating                                | William L. Johnson<br><i>Ruben F. and Donna Mettler Professor of Engineering and Applied Science</i><br>Marios D. Demetriou<br><i>Senior Research Fellow in Materials Science</i> |
| U.II - Astronomy<br>101 Guggenheim<br>1:00 - 1:20 PM                   | <b>Monica He</b>  | Cold Friends of Hot Jupiters  | Sasha Hinkley<br><i>Postdoctoral Scholar in Astronomy</i>   |
| F.III - Chemistry<br>210 Baxter<br>3:10 - 3:30 PM                      | <b>Thomas J. Heavey</b><br><i>John and Barbara Gee SURF Fellow</i>  | THz Emission from Photoinduced Charge Transfer in Re(I) Carbonyl Diimines   | Geoffrey A. Blake<br><i>Professor of Cosmochemistry and Planetary Sciences and Professor of Chemistry</i><br>Marco A. Allodi<br><i>Graduate Student in Chemistry</i>              |
| B.I - Biology<br>25 Baxter<br>10:00 - 10:20 AM                         | <b>Adriana Hertel-Wulff</b>   | Using Phospholipid Bilayer Nanodiscs as Platforms for Small-Angle Scattering Investigations of a Membrane Protein       | Lise Arleth<br><i>Associate Professor in Biophysics, University of Copenhagen</i><br>William M. Clemons<br><i>Assistant Professor of Biochemistry</i>                             |
| X.III - Physics<br>113 Spalding<br>3:10 - 3:30 PM                      | <b>Matthew T. Heydeman</b><br><i>Victor Neher SURF Fellow</i>       | Spectral Gap Scaling of One Dimensional Quantum Spin Chains   | John P. Preskill<br><i>Richard P. Feynman Professor of Theoretical Physics</i><br>Spyridon Michalakis<br><i>Postdoctoral Scholar in Theoretical Physics</i>                       |
| G.II - Chemistry<br>218 Baxter<br>1:20 - 1:40 PM                       | <b>Daniel W. Hogan</b><br><i>Jack and Edith Roberts SURF Fellow</i> | Instrument Design and Construction for Photoacoustic Spectroscopy and Frequency Stabilized Cavity Ringdown Spectroscopy | Mitchio Okumura<br><i>Professor of Chemical Physics</i><br>David Long<br><i>Graduate Student in Chemistry</i>   |
| T.III - Humanities and Social Sciences<br>206 Thomas<br>2:30 - 2:50 PM | <b>Nerissa E. Hoglen</b><br><i>J. Kent Clark SURF Fellow</i>        | The Heroic Leaders of Renaissance Epics   | Kristine L. Haugen<br><i>Professor of English</i>   |
| M.II - Electrical Engineering<br>102 Spalding<br>1:00 - 1:20 PM        | <b>Maxwell C. Horton</b><br><i>Richter Scholar</i>                  | Developing a Microfluidic Delivery System for Silicon Nanopillar Ion Sensors  | Axel Scherer<br><i>Bernard A. Neches Professor of Electrical Engineering, Applied Physics, and Physics</i><br>Andrew Homyk<br><i>Graduate Student in Electrical Engineering</i>   |

C.II - Biology  
125 Baxter  
1:20 - 1:40 PM

***Gladia C. Hotan***  
*Richter Scholar*

Faces in Motion: The Effect  
of Motion on the Saliency of  
Faces

Christof Koch  
*Lois and Victor Troendle*  
*Professor of Cognitive and*  
*Behavioral Biology and*  
*Professor of Computation and*  
*Neural Systems*  
Blythe Towal  
*Postdoctoral Scholar in Biology*

D.III - Biology  
127 Baxter  
2:30 - 2:50 PM

***Sophia Hsien***  
*Joanna Wall Muir*  
*SURF Fellow*

Investigating the Sufficiency  
of "Leaky Gut" to Induce  
Autism-Like Symptoms

Paul H. Patterson  
*Anne P. and Benjamin F.*  
*Biaggini Professor of Biological*  
*Sciences*  
Elaine Hsiao  
*Graduate Student in Biology*

F.II - Chemistry  
210 Baxter  
2:00 - 2:20 PM

***Jessica W. Hsu***

Characterization and  
Structural Study of a Zinc  
Exporting P<sub>1B</sub>-Type ATPase

Douglas C. Rees  
*Roscoe Gilkey Dickinson*  
*Professor of Chemistry;*  
*Investigator, Howard Hughes*  
*Medical Institute*  
Gabriele Meloni  
*Postdoctoral Scholar in*  
*Chemistry*

Poster Session  
San Pasqual Mall  
3:45 - 5:00 PM

***David C. Hu***  
*Larson Scholar*

Dinosaur Body Temperatures  
From Clumped Isotope  
Paleothermometry in  
Carbonate From Eggshells

John M. Eiler  
*Robert P. Sharp Professor of*  
*Geology and Professor of*  
*Geochemistry*  
Rob Eagle  
*Postdoctoral Scholar in*  
*Geochemistry*

C.I - Biology  
125 Baxter  
10:40 - 11:00 AM

***Jennifer Hu***  
*Thomas Hunt Morgan*  
*SURF Fellow*

Engineered Under-  
dominance: A Gene Drive  
System for *Drosophila*  
*melanogaster*

Bruce A. Hay  
*Professor of Biology*  
Kelly J. Dusingberre  
*Graduate Student in*  
*Biochemistry*

M.III - Electrical Engineering  
102 Spalding  
2:30 - 2:50 PM

***Yunqing Hu***  
*Arthur Rock SURF Fellow*

Sensing Module for CMOS  
Based Magneto Bio-Sensor

Ali A. Hajimiri  
*Thomas G. Myers Professor of*  
*Electrical Engineering*

K.I - Bioengineering/  
Chemical Engineering  
306 Thomas  
11:00 - 11:20 AM

***Tiffany A. Huang***  
*Samuel and Berta Spalter*  
*SURF Fellow*

Modeling and Characterizing  
a Novel Nitric Oxide Donor  
Used as a Treatment for Dry  
Eye

Julia A. Kornfield  
*Professor of Chemical*  
*Engineering*  
Dennis L. Ko  
*Graduate Student in Chemical*  
*Engineering*

H.I - Chemistry/  
Chemical Engineering  
228 Baxter  
10:00 - 10:20 AM

**Yuehan Huang**  
*Sidney R. and Nancy M.  
Petersen SURF Fellow*

Effect of Aging on the Foam  
Fractionation of Lactoferrin

Julia A. Kornfield  
*Professor of Chemical  
Engineering*  
Robert D. Tanner  
*Visiting Associate in Chemical  
Engineering*

Q.III - Aeronautics/  
Mechanical Engineering  
306 Firestone  
2:50 - 3:10 PM

**Ka Kin Kenneth Hung**

Optimizations of the  
Quasicontinuum Method on  
Lattice Structure  
Computation

Michael Ortiz  
*Dotty and Dick Hayman  
Professor of Aeronautics and  
Mechanical Engineering*  
Malena I. Español  
*Postdoctoral Scholar in  
Aeronautics*

U.II - Astronomy  
101 Guggenheim  
1:40 - 2:00 PM

**Nathaniel M. Indik**  
*Harold and Mary Zirin  
SURF Fellow*

Determining the Neutron-  
Star Equation of State From  
Mass and Radius  
Observations

Lee A. Lindblom  
*Senior Research Associate in  
Theoretical Astrophysics*

L.II - Computing  
100 Powell-Booth  
1:40 - 2:00 PM

**Gregory R. Izatt**  
*Richter Scholar*

A Mechanism for Random-  
Walk-Based Deterministic  
Object Sorting on DNA  
Origami

Erik Winfree  
*Professor of Computer Science,  
Computation and Neural  
Systems, and Bioengineering*  
Niranjan Srinivas  
*Graduate Student in  
Computation and Neural  
Systems*

J.I - Bioengineering  
301 Thomas  
10:00 - 10:20 AM

**Anum Jang Sher**

Standing Before Stepping:  
A Home Stand Frame for  
Spinal Cord Injury Patients

Joel W. Burdick  
*Professor of Mechanical  
Engineering and  
Bioengineering*  
Tom Desautels  
*Graduate Student in  
Mechanical Engineering*

P.I - Materials Science/  
Applied Physics  
102 Steele  
11:00 - 11:20 AM

**Julia D. Jester**

Growth and Characterization  
of Silicon Germanium  
Microwires for Application in  
Multijunction Wire-Array  
Solar Cells

Harry A. Atwater  
*Howard Hughes Professor and  
Professor of Applied Physics  
and Materials Science*  
Dan B. Turner-Evans  
*Graduate Student in Applied  
Physics*

E.I - Biology  
128 Baxter  
10:00 - 10:20 AM

**Siduo Jiang**

Engineering cTPR-Linked  
Antibody-Like Reagents to  
Improve Neutralization of  
HIV

Pamela J. Bjorkman  
*Max Delbrück Professor of  
Biology; Investigator, Howard  
Hughes Medical Institute*  
Anthony P. West  
*Member of the Professional  
Staff in Biology*

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| <p>N.I - Electrical Engineering<br/>120 Powell-Booth<br/>11:20 - 11:40 AM</p>        | <p><b>Raymond C. Jimenez</b><br/><i>Rose Hills Foundation<br/>SURF Fellow</i></p> | <p>Design and Fabrication of<br/>Optically-Linked CMOS<br/>Neural Probes</p>   | <p>Axel Scherer<br/><i>Bernard A. Neches Professor of<br/>Electrical Engineering, Applied<br/>Physics, and Physics</i><br/>Aditya Rajagopal<br/><i>Graduate Student in Electrical<br/>Engineering</i></p>  |
| <p>Poster Session<br/>San Pasqual Mall<br/>3:45 - 5:00 PM</p>                        | <p><b>Xiao Jin</b><br/><i>Mary Vodopia SURF Fellow</i></p>                        | <p>Post-WWI Scientific<br/>Communication Networks as<br/>Seen Through Albert<br/>Einstein's Correspondence</p>                           | <p>Diana Kormos Buchwald<br/><i>Professor of History</i></p>   |
| <p>I.I - Chemical Engineering<br/>237 Baxter<br/>10:40 - 11:00 AM</p>                | <p><b>Granton A. Jindal</b><br/><i>Amgen Scholar</i></p>                          | <p>Investigating and Gate<br/>Topologies to Aid in<br/>Proteomic Analysis</p>  | <p>David A. Tirrell<br/><i>Ross McCollum-William H.<br/>Corcoran Professor and<br/>Professor of Chemistry and<br/>Chemical Engineering</i><br/>Alborz Mahdavi<br/><i>Graduate Student in<br/>Bioengineering</i></p>  |
| <p>R.I - Engineering and<br/>Applied Science<br/>206 Thomas<br/>11:20 - 11:40 AM</p> | <p><b>Samuel S. Jones</b></p>   | <p>Implementation of Home<br/>Planning and Automation<br/>Software for Solar Decathlon<br/>2011</p>                                      | <p>Richard M. Murray<br/><i>Thomas E. and Doris Everhart<br/>Professor of Control and<br/>Dynamical Systems and<br/>Bioengineering</i><br/>Phil Lee<br/><i>Vice President of Engineering,<br/>Suntrough Energy</i></p>                                     |
| <p>Poster Session<br/>San Pasqual Mall<br/>3:45 - 5:00 PM</p>                        | <p><b>Alex B. Jose</b></p>  | <p>Interactive Image<br/>Segmentation Toolset:<br/>An Application for<br/>Crowdsourcing a New<br/>Benchmark Segmentation<br/>Dataset</p> | <p>Pietro Perona<br/><i>Allen E. Puckett Professor of<br/>Electrical Engineering</i><br/>Piotr Dollar<br/><i>Postdoctoral Scholar in<br/>Electrical Engineering</i><br/>Michael R. Maire<br/><i>Postdoctoral Scholar in<br/>Electrical Engineering</i></p> |
| <p>C.II - Biology<br/>125 Baxter<br/>1:00 - 1:20 PM</p>                              | <p><b>Devashish S. Joshi</b></p>  | <p>Understanding Tumor<br/>Vascular Heterogeneity Using<br/>Whole Mount Optical<br/>Microscopy and MRI</p>                               | <p>Scott E. Fraser<br/><i>Anna L. Rosen Professor of<br/>Biology and Professor of<br/>Bioengineering</i><br/>David S. Koos<br/><i>Senior Research Fellow in<br/>Biology</i></p>  |
| <p>A.I - Biology<br/>19 Baxter<br/>10:20 - 10:40 AM</p>                              | <p><b>Amol D. Kamat</b><br/><i>Richter Scholar</i></p>                            | <p>Identifying, Analyzing,<br/>and Creating a Minimalistic<br/><i>in vitro</i> System for the piRNA<br/>Pathway</p>                      | <p>Alexei Aravin<br/><i>Assistant Professor of Biology</i><br/>Dubravka Pezic<br/><i>Postdoctoral Scholar in Biology</i></p>   |

H.II - Chemistry/  
Chemical Engineering  
228 Baxter  
1:40 - 2:00 PM

**Arvind Kannan**  
*Professor Fredrick H. Shair*  
*SURF Fellow*

Computational Studies of  
Active Site Hydration in  
Cytochrome P450<sub>BM3</sub> for the  
Development and  
Understanding of P450  
Catalyzed C-H Amination

Frances H. Arnold  
*Dick and Barbara Dickinson*  
*Professor of Chemical*  
*Engineering, Bioengineering,*  
*and Biochemistry*  
Pedro Coelho  
*Graduate Student in Chemistry*

Q.I - Aeronautics/  
Mechanical Engineering  
306 Firestone  
11:20 - 11:40 AM

**Robert F. Karol**  
*Hannah Bradley SURF Fellow*

Object Recognition and  
Localization Using Audio and  
Tactile Sensors

Joel W. Burdick  
*Professor of Mechanical*  
*Engineering and*  
*Bioengineering*  
Paul Hebert  
*Graduate Student in*  
*Mechanical Engineering*

N.I - Electrical Engineering  
120 Powell-Booth  
10:40 - 11:00 AM

**Aroutin Khachaturian**

Integration of Vertical-Cavity  
Surface-Emitting Lasers on  
CMOS Chips

Axel Scherer  
*Bernard A. Neches Professor of*  
*Electrical Engineering, Applied*  
*Physics, and Physics*  
Muhammad Mujeeb-U-  
Rahman  
*Graduate Student in Electrical*  
*Engineering*

E.I - Biology  
128 Baxter  
10:40 - 11:00 AM

**Sohini Khan**

Understanding the Role of  
Cilia in Hedgehog Signaling  
Pathway

Rajat Rohatgi  
*Assistant Professor of Medicine,*  
*Stanford School of Medicine*  
Pawel Niewiadomski  
*Postdoctoral Scholar in Biology,*  
*Stanford School of Medicine*  
David A. Tirrell  
*Ross McCollum-William H.*  
*Corcoran Professor and*  
*Professor of Chemistry and*  
*Chemical Engineering*

J.I - Bioengineering  
301 Thomas  
10:40 - 11:00 AM

**Ishan Khetarpal**  
*Stephen Adelman Memorial*  
*SURF Fellow*

Design and Analysis of an  
*in vitro* Exact Adapter

Richard M. Murray  
*Thomas E. and Doris Everhart*  
*Professor of Control and*  
*Dynamical Systems and*  
*Bioengineering*  
Jongmin Kim  
*Graduate Student in Biology*

P.I - Materials Science/  
Applied Physics  
102 Steele  
11:20 - 11:40 AM

**Laura Kim**

Thermodynamic Properties  
of Modified LiFePO<sub>4</sub> for  
Li-ion Batteries

Brent T. Fultz  
*Professor of Materials Science*  
*and Applied Physics*  
Hillary Smith  
*Graduate Student in Materials*  
*Science*

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| H.III - Chemistry/<br>Chemical Engineering<br>228 Baxter<br>3:30 - 3:50 PM       | <b>Sanghyu Kim</b>   | Solid-State NMR Probe and Rotor Design at High Pressure and Corrosive Environment for Extended <i>in situ</i> Experiments   | Sonjong Hwang<br><i>Member of the Professional Staff in Chemical Engineering; Lecturer in Chemistry</i><br>S. I. Zones<br><i>Catalyst Researcher, Chevron Energy and Technology Center</i>  |
| O.I - Materials Science<br>214 Steele<br>10:40 - 11:00 AM                        | <b>Daniil A. Kitchaev</b><br><i>Frederick W. Drury, Jr., SURF Fellow</i> | The Phase and Proton Conduction Behavior of Solid Acids of the Form $\text{CsI}_x(\text{H}_2\text{PO}_4)_{1-x}$ and $\text{Ba}_{(3-x)}\text{M}_x\text{H}_x(\text{PO}_4)_2$ for $\text{M} = \text{Na}, \text{K}, \text{Rb}, \text{Cs}$ | Sossina M. Haile<br><i>Professor of Materials Science and Chemical Engineering</i><br>Ayako Ikeda<br><i>Graduate Student in Materials Science</i>   |
| B.III - Biology<br>25 Baxter<br>3:30 - 3:50 PM                                   | <b>Rebekah Z. Kitto</b>  | Characterizing and Investigating Spatio-Temporal Expression Patterns of Gene Expression in the Veg1 and Veg2 Regions of <i>E. tribuloides</i>   | Eric H. Davidson<br><i>Norman Chandler Professor of Cell Biology</i><br>Eric M. Erkenbrack<br><i>Graduate Student in Biology</i>  |
| C.III - Biology<br>125 Baxter<br>3:10 - 3:30 PM                                  | <b>Kathryn B. Knister</b>  | Asbestos-Induced Alveolar Epithelial Cell Death: An Investigation Into the Role of the ASK1/JNK Pathway in Apoptosis  | David W. Kamp<br><i>Professor of Medicine and of Cell and Molecular Biology, Northwestern University Feinberg School of Medicine</i><br>David C. Chan<br><i>Professor of Biology; Investigator, Howard Hughes Medical Institute</i> |
| X.III - Physics<br>113 Spalding<br>3:30 - 3:50 PM                                | <b>Peter D. Koch</b><br><i>Class of '52 SURF Fellow</i>                  | The Role of Elastic Interactions in Bacterial Chemoreceptor Organization and Function   | Rob B. Phillips<br><i>Professor of Applied Physics and Mechanical Engineering</i><br>Christoph A. Haselwandter<br><i>Postdoctoral Scholar in Applied Physics</i>  |
| F.III - Chemistry<br>210 Baxter<br>2:50 - 3:10 PM                                | <b>Theodore K. Koenig</b>  | Investigation of the Reported Separation of Nuclear Spin Isomers of Water Through Selective Adsorption  | Geoffrey A. Blake<br><i>Professor of Cosmochemistry and Planetary Sciences and Professor of Chemistry</i><br>Daniel B. Holland<br><i>Graduate Student in Chemistry</i>  |
| Q.II - Aeronautics/<br>Mechanical Engineering<br>306 Firestone<br>1:20 - 1:40 PM | <b>Chan-Hee Koh</b>  | Damage Mitigation and Performance Improvement of Vertical Axle Wind Turbines Using Compliant Wind Blades  | Mory Gharib<br><i>Hans W. Liepmann Professor of Aeronautics and Professor of Bioinspired Engineering</i><br>Julia T. Cosse<br><i>Graduate Student in Aeronautics</i>  |

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| <p>C.II - Biology<br/>125 Baxter<br/>1:40 - 2:00 PM</p>                                   | <p><b><i>Swadhruth Komanduri</i></b></p>  | <p>Neuroeconomic Foundations<br/>of Social Learning in<br/>Economic Choice</p>   | <p>Christof Koch<br/><i>Lois and Victor Troendle<br/>Professor of Cognitive and<br/>Behavioral Biology and<br/>Professor of Computation and<br/>Neural Systems</i><br/>Michael Hill<br/><i>Postdoctoral Scholar in Biology</i></p>                                    |
| <p>B.II - Biology<br/>25 Baxter<br/>2:00 - 2:20 PM</p>                                    | <p><b><i>Philip L. Kong</i></b><br/><i>Richter Scholar</i></p>                            | <p>Elucidating NF-<math>\kappa</math>B Oscillation<br/>at a Single Cell Level</p>  | <p>David Baltimore<br/><i>Robert Andrews Millikan<br/>Professor of Biology; Nobel<br/>Laureate; President Emeritus</i><br/>Devdoot Majumdar<br/><i>Postdoctoral Scholar in Biology</i></p>  |
| <p>O.I - Materials Science<br/>214 Steele<br/>10:00 - 10:20 AM</p>                        | <p><b><i>Jeffrey A. Kowalski</i></b><br/><i>Arthur R. Adams SURF Fellow</i></p>           | <p>Sputter Deposition and<br/>Electrochemical<br/>Characterization of Model<br/>Thin-Film Metal Electrodes<br/>for Solid Acid Fuel Cells</p> | <p>Sossina M. Haile<br/><i>Professor of Materials Science<br/>and Chemical Engineering</i><br/>Arón Varga<br/><i>Graduate Student in Materials<br/>Science</i></p>  |
| <p>H.I - Chemistry/<br/>Chemical Engineering<br/>228 Baxter<br/>10:40 - 11:00 AM</p>      | <p><b><i>Sung Min Kwon</i></b></p>  | <p>Asthma and Thunderstorms:<br/>Observing Pollen Grain<br/>Rupture in Laboratory<br/>Simulated Conditions</p>                               | <p>Richard C. Flagan<br/><i>Irma and Ross McCollum-<br/>William H. Corcoran Professor<br/>of Chemical Engineering and<br/>Professor of Environmental<br/>Science and Engineering</i><br/>James M. House<br/><i>Visiting Associate in Chemical<br/>Engineering</i></p> |
| <p>Poster Session<br/>San Pasqual Mall<br/>3:45 - 5:00 PM</p>                             | <p><b><i>Valère R. Lambert</i></b><br/><i>Kiyo and Eiko Tomiyasu<br/>SURF Scholar</i></p> | <p>Elastostatic Solutions for<br/>Realistic Slip and Stress<br/>Around Mode II and III<br/>Cracks</p>  | <p>Jean-Philippe Avouac<br/><i>Professor of Geology</i><br/>Sylvain Barbot<br/><i>Postdoctoral Scholar in Geology</i></p>   |
| <p>K.III - Bioengineering/<br/>Chemical Engineering<br/>306 Thomas<br/>3:30 - 3:50 PM</p> | <p><b><i>Megan C. Larisch</i></b><br/><i>Thomas E. Everhart<br/>SURF Fellow</i></p>       | <p>Quantitative Analysis of the<br/>Phototaxic Response of<br/>Artemia</p>   | <p>John O. Dabiri<br/><i>Associate Professor of<br/>Aeronautics and<br/>Bioengineering</i><br/>Janna Nawroth<br/><i>Graduate Student in Biology</i></p>   |
| <p>M.II - Electrical Engineering<br/>102 Spalding<br/>1:20 - 1:40 PM</p>                  | <p><b><i>Pawel M. Latawiec</i></b></p>  | <p>Patterned Quantum Dots for<br/>Nanotechnology</p>   | <p>Axel Scherer<br/><i>Bernard A. Neches Professor of<br/>Electrical Engineering, Applied<br/>Physics, and Physics</i><br/>Andrew Homyk<br/><i>Graduate Student in Electrical<br/>Engineering</i></p>   |

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| S.I - Geological and Planetary Sciences<br>142 Keck<br>10:00 - 10:20 AM | <b>Michael D. Lauria</b>  | Analysis of Lunar Roughness and Thermal Emission   | Oded Aharonson<br><i>Professor of Planetary Science</i><br>Antoine Lucas<br><i>Postdoctoral Scholar in Planetary Science</i>   |
| V.III - Mathematics<br>114 Steele<br>2:30 - 2:50 PM                     | <b>Brian R. Lawrence</b><br><i>Richter Scholar</i>                      | Further Consequences of the Gross-Zagier Formulae  | Dinakar Ramakrishnan<br><i>Taussky-Todd-Loneragan Professor of Mathematics</i>   |
| L.I - Computing<br>100 Powell-Booth<br>10:00 - 10:20 AM                 | <b>Tuan Anh Le</b>  | Change-Point Detection for the Community Seismic Network   | R. Andreas Krause<br><i>Assistant Professor of Computer Science</i><br>Matthew N. Faulkner<br><i>Graduate Student in Computer Science</i>                              |
| T.II - Humanities and Social Sciences<br>206 Thomas<br>2:00 - 2:20 PM   | <b>Jetson Leder-Luis</b><br><i>Class of '36 SURF Fellow</i>             | Applied Statistics and Digit Analysis to Identify Fraud in Financial Data Sets   | Jean E. Ensminger<br><i>Edie and Lew Wasserman Professor of Anthropology</i>   |
| D.I - Biology<br>127 Baxter<br>10:40 - 11:00 AM                         | <b>Ernest Y. Lee</b><br><i>Øistein and Rita A. Skjellum SURF Fellow</i> | Application of High-Throughput Screening to the Generation of a Thermodynamic Stability Database of Protein Mutant Libraries | Stephen L. Mayo<br><i>Bren Professor of Biology and Chemistry</i><br>Alex Nisthal<br><i>Graduate Student in Biochemistry</i>   |
| L.II - Computing<br>100 Powell-Booth<br>1:00 - 1:20 PM                  | <b>EunJee Lee</b><br><i>Arthur E. Lamel Memorial SURF Fellow</i>        | Three Lead EKG Glove With Stethoscopes   | Julian J. Bunn<br><i>Member of the Professional Staff in CACR</i><br>K. Mani Chandy<br><i>Simon Ramo Professor and Professor of Computer Science</i>                   |
| X.I - Physics<br>113 Spalding<br>10:20 - 10:40 AM                       | <b>Joon Ho Lee</b>  | Pattern Formation With Two-Dimensional Array of Trapped Ions   | Michael C. Cross<br><i>Professor of Theoretical Physics</i>  |
| L.II - Computing<br>100 Powell-Booth<br>2:00 - 2:20 PM                  | <b>Yae Lim Lee</b><br><i>Richter Scholar</i>                            | Demonstration of a DNA-Based Random Walking Molecular Robot That Reorganizes DNA-Tagged Objects                              | Erik Winfree<br><i>Professor of Computer Science, Computation and Neural Systems, and Bioengineering</i><br>Lulu Qian<br><i>Postdoctoral Scholar in Bioengineering</i> |

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| G.II - Chemistry<br>218 Baxter<br>1:00 - 1:20 PM                       | <b><i>Jomya C. Lei</i></b>  | Improve Syntheses for Tracking the Decomposition of Silica-Supported Olefin Metathesis Catalysts        | Robert H. Grubbs<br><i>Victor and Elizabeth Atkins Professor of Chemistry; Nobel Laureate</i><br>Matthew M. Van Wingerden<br><i>Graduate Student in Chemistry</i>  |
| F.I - Chemistry<br>210 Baxter<br>11:20 - 11:40 AM                      | <b><i>Erica M. Leung</i></b>  | Cellular Delivery of an Inhibitory Branched Capture Agent Against Akt1 via Cell-Penetrating Peptides    | James R. Heath<br><i>Elizabeth W. Gilloon Professor and Professor of Chemistry</i><br>Ryan K. Henning<br><i>Graduate Student in Chemistry</i>  |
| O.II - Materials Science<br>214 Steele<br>1:00 - 1:20 PM               | <b><i>Jarvis Li</i></b>   | Mechanical Properties of Nanopillars Composed of Two Metals: A Simple Model for Metal Matrix Composites | Julia R. Greer<br><i>Assistant Professor of Materials Science</i><br>Qiang Guo<br><i>Postdoctoral Scholar in Applied Physics and Materials Science</i>   |
| S.II - Geological and Planetary Sciences<br>142 Keck<br>2:00 - 2:20 PM | <b><i>Jingyuan Li</i></b>   | Analyzing the Effects of Ice on Stratospheric Water   | Geoffrey A. Blake<br><i>Professor of Cosmochemistry and Planetary Sciences and Professor of Chemistry</i><br>Ke Zhang<br><i>Graduate Student in Astronomy</i>  |
| I.I - Chemical Engineering<br>237 Baxter<br>10:00 - 10:20 AM           | <b><i>Shuaili Li</i></b>  | Improving the Toughness of Responsive Double Physical Network Injectable Hydrogels                      | Bradley D. Olsen<br><i>Assistant Professor of Chemical Engineering, Massachusetts Institute of Technology</i><br>Matthew J. Glassman<br><i>Graduate Student in Chemical Engineering, Massachusetts Institute of Technology</i><br>David A. Tirrell<br><i>Ross McCollum-William H. Corcoran Professor and Professor of Chemistry and Chemical Engineering</i> |
| D.III - Biology<br>127 Baxter<br>3:30 - 3:50 PM                        | <b><i>Zongyu Li</i></b><br><i>Development and Institute Relations SURF Fellow</i> | Molecular Interactions of Methyl-CpG-Binding Protein 2 and Inhibitor of Kappa B Kinase Alpha            | Paul H. Patterson<br><i>Anne P. and Benjamin F. Biaggini Professor of Biological Sciences</i><br>Ali Khoshnan<br><i>Senior Research Fellow in Biology</i>  |
| A.I - Biology<br>19 Baxter<br>11:20 - 11:40 AM                         | <b><i>Susan E. Liao</i></b><br><i>Hugh F. and Audy Lou Colwin SURF Fellow</i>     | Identification of Piwi-Binding Loci in the <i>Drosophila</i> Germline Genome                            | Katalin Fejes Toth<br><i>Thomas Hunt Morgan Senior Research Fellow in Biology</i>  |

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| <p>G.I - Chemistry<br/>218 Baxter<br/>10:00 - 10:20 AM</p>                                | <p><b>Benjamin C. Lieber</b><br/><i>William N. Lacey SURF Fellow</i></p>   | <p>Directed, <i>in situ</i> Growth of<br/>Conductive Nanowires<br/>Between the Photoelectrodes<br/>in a Tandem Microwire Array<br/>Fuel-Forming Device</p> | <p>Nathan S. Lewis<br/><i>George L. Argyros Professor and<br/>Professor of Chemistry</i><br/>Shane A. Ardo<br/><i>Postdoctoral Scholar in<br/>Chemistry</i></p>   |
| <p>O.II - Materials Science<br/>214 Steele<br/>2:00 - 2:20 PM</p>                         | <p><b>Ee Jane Lim</b><br/><i>Shirley and Carl Larson<br/>SURF Fellow</i></p>   | <p>Faster Compression Leads to<br/>Higher Recovery and Better<br/>Energy Absorption in Carbon<br/>Nanotube Micro-Pillars:<br/>An <i>in situ</i> Study</p>  | <p>Julia R. Greer<br/><i>Assistant Professor of Materials<br/>Science</i><br/>Siddhartha Pathak<br/><i>W.M. Keck Institute for Space<br/>Studies Postdoctoral Scholar in<br/>Applied Physics and Materials<br/>Science</i></p>                                      |
| <p>M.I - Electrical Engineering<br/>102 Spalding<br/>11:00 - 11:20 AM</p>                 | <p><b>Chuan-Song A. Lin</b></p>  | <p>Crowd-Sourcing Behavior<br/>Recognition in Mouse Videos</p>   | <p>Pietro Perona<br/><i>Allen E. Puckett Professor of<br/>Electrical Engineering</i><br/>Xavier P. Burgos-Artizzu<br/><i>Visitor in Electrical<br/>Engineering</i></p>  |
| <p>C.II - Biology<br/>125 Baxter<br/>2:00 - 2:20 PM</p>                                   | <p><b>Randall Lin</b></p>  | <p>Information Efficacy in<br/>Nonlinear Dendritic Trees</p>   | <p>Christof Koch<br/><i>Lois and Victor Troendle<br/>Professor of Cognitive and<br/>Behavioral Biology and<br/>Professor of Computation and<br/>Neural Systems</i><br/>Erik W. Schomburg<br/><i>Graduate Student in Physics,<br/>Mathematics, and Astronomy</i></p> |
| <p>K.I - Bioengineering/<br/>Chemical Engineering<br/>306 Thomas<br/>11:20 - 11:40 AM</p> | <p><b>Yulan I. Lin</b><br/>California State University,<br/>Los Angeles<br/><i>NSF Center for the Science and<br/>Engineering of Materials<br/>MURF Fellow</i></p> | <p>Perfluoroalkyl-Poly(ethylene<br/>glycol)-Poly(acrylic acid)<br/>Triblock Copolymers for<br/>Mucoadhesive Drug Delivery</p>                              | <p>Julia A. Kornfield<br/><i>Professor of Chemical<br/>Engineering</i><br/>Ming-Hsin Wei<br/><i>Graduate Student in Chemical<br/>Engineering</i><br/>Yong Ba<br/><i>Assistant Professor of<br/>Chemistry, California State<br/>University, Los Angeles</i></p>      |

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| <p>I.II - Chemical Engineering<br/>237 Baxter<br/>1:40 - 2:00 PM</p>                      | <p><b><i>Eric Liu</i></b></p>  | <p>Fabricating and Assembling<br/>Clover-Leaf Microgels Into<br/>Porous 3D Scaffolds to<br/>Promote Re-Epithelialization<br/>of the Cornea</p> | <p>David A. Tirrell<br/><i>Ross McCollum-William H.<br/>Corcoran Professor and<br/>Professor of Chemistry and<br/>Chemical Engineering</i><br/>Amy Fu<br/><i>Graduate Student in Chemical<br/>Engineering</i><br/>Lawrence J. Dooling<br/><i>Graduate Student in Chemical<br/>Engineering</i></p> |
| <p>I.I - Chemical Engineering<br/>237 Baxter<br/>11:00 - 11:20 AM</p>                     | <p><b><i>Erik J. Liu</i></b></p>   | <p>Self-Assembling Artificial<br/>Extracellular Matrix Proteins<br/>for Cell Encapsulation</p>   | <p>David A. Tirrell<br/><i>Ross McCollum-William H.<br/>Corcoran Professor and<br/>Professor of Chemistry and<br/>Chemical Engineering</i><br/>Maren Buck<br/><i>Postdoctoral Scholar in<br/>Chemical Engineering</i></p>   |
| <p>K.III - Bioengineering/<br/>Chemical Engineering<br/>306 Thomas<br/>3:10 - 3:30 PM</p> | <p><b><i>Ashley R. Lo</i></b><br/><i>Samuel N. Vodopia and Carol<br/>J. Hasson SURF Fellow</i></p> | <p>Cell ECM Network Study for<br/>Application in Tissue<br/>Engineering</p>  | <p>Chin-Lin Guo<br/><i>Assistant Professor of<br/>Bioengineering and Applied<br/>Physics</i><br/>Yuhwa Lo<br/><i>Professor of Electrical and<br/>Computer Engineering,<br/>University of California,<br/>San Diego</i></p>  |
| <p>S.III - Geological and<br/>Planetary Sciences<br/>142 Keck<br/>2:30 - 2:50 PM</p>      | <p><b><i>Daniel Y. Lo</i></b><br/><i>Homer J. Stewart SURF Fellow</i></p>                          | <p>Atmospheric Features at the<br/>Jupiter North Pole From<br/>Cassini Images</p>  | <p>Andrew P. Ingersoll<br/><i>Earle C. Anthony Professor of<br/>Planetary Science</i><br/>Shawn Ewald<br/><i>Senior Research Scientist in<br/>Planetary Science</i></p>   |
| <p>I.II - Chemical Engineering<br/>237 Baxter<br/>1:00 - 1:20 PM</p>                      | <p><b><i>Megan Lo</i></b><br/><i>Richter Scholar</i></p>   | <p>N-Terminal Functionalization<br/>of Engineered Calmodulin<br/>Constructs for Surface<br/>Immobilization</p>                                 | <p>David A. Tirrell<br/><i>Ross McCollum-William H.<br/>Corcoran Professor and<br/>Professor of Chemistry and<br/>Chemical Engineering</i><br/>Chethana Kulkarni<br/><i>Graduate Student in Chemistry</i></p>   |
| <p>W.I - Physics/Astronomy<br/>106 Spalding<br/>10:40 - 11:00 AM</p>                      | <p><b><i>Cassandra D. Lochhaas</i></b><br/><i>Robert L. Blinkenberg<br/>SURF Fellow</i></p>        | <p>An Analysis of Properties of<br/>Galaxies With Close Pairs</p>  | <p>Nick Z. Scoville<br/><i>Francis L. Moseley Professor of<br/>Astronomy</i></p>  |

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| S.III - Geological and Planetary Sciences<br>142 Keck<br>3:10 - 3:30 PM    | <b>Paige D. Logan</b>  | Developing an Algorithm to Pinpoint Deep Sea Corals   | Jess F. Adkins<br><i>Professor of Geochemistry and Global Environmental Science</i>   |
| Poster Session<br>San Pasqual Mall<br>3:45 - 5:00 PM                       | <b>David Lu</b>  | 2011 Solar Decathlon: Building Control Subsystem  | Richard M. Murray<br><i>Thomas E. and Doris Everhart Professor of Control and Dynamical Systems and Bioengineering</i><br>Phil Lee<br><i>Vice President of Engineering, Suntrough Energy</i>  |
| T.III - Humanities and Social Sciences<br>206 Thomas<br>3:10 - 3:30 PM     | <b>Tong Lu</b>   | The Role of Pavlovian Processes and Payment Methods on Decision Making and Reinforcement Learning   | Antonio Rangel<br><i>Professor of Economics</i>   |
| M.I - Electrical Engineering<br>102 Spalding<br>11:20 - 11:40 AM           | <b>Tsung-Ju J. Lu</b>  | Design, Fabrication, and Characterization of Low Threshold Photonic Quasicrystal Lasers   | Axel Scherer<br><i>Bernard A. Neches Professor of Electrical Engineering, Applied Physics, and Physics</i><br>Se-Heon Kim<br><i>Postdoctoral Scholar in Electrical Engineering</i>  |
| H.I - Chemistry/<br>Chemical Engineering<br>228 Baxter<br>11:20 - 11:40 AM | <b>Brian S. Ma</b>   | Development of a Physical Model of <i>E. coli</i> Carbon Metabolism for Predicting Cell Growth Parameters                                     | Kristala L. Prather<br><i>Joseph R. Mares Assistant Professor of Chemical Engineering, Massachusetts Institute of Technology</i><br>Kevin Solomon<br><i>Graduate Student in Chemical Engineering, Massachusetts Institute of Technology</i><br>Richard M. Murray<br><i>Thomas E. and Doris Everhart Professor of Control and Dynamical Systems and Bioengineering</i> |
| Poster Session<br>San Pasqual Mall<br>3:45 - 5:00 PM                       | <b>James F. Macdonald</b>                                      | Study of $Z$ boson + Higgs $\rightarrow Z$ boson $W$ boson $W^*$ boson $\rightarrow$ leptons + neutrinos at the International Linear Collider | Maria Spiropulu<br><i>Associate Professor of Physics</i><br>Barry C. Barish<br><i>Ronald and Maxine Linde Professor of Physics, Emeritus</i>  |
| A.I - Biology<br>19 Baxter<br>10:00 - 10:20 AM                             | <b>Vishnu Manoranjan</b><br><i>Arthur R. Adams SURF Fellow</i> | Argonaute Protein From <i>Rhodobacter sphaeroides</i> and Its Nucleic Acid Interactions   | Alexei Aravin<br><i>Assistant Professor of Biology</i><br>Ivan A. Olovnikov<br><i>Visiting Graduate Student in Biology</i>  |

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| <p>S.I - Geological and Planetary Sciences<br/>142 Keck<br/>11:00 - 11:20 AM</p>      | <p><b>Taylor S. Martin</b></p>  | <p>Investigating Mechanisms of Isotopic Fractionation in Microbial Sulfate Reduction</p>                    | <p>Alex L. Sessions<br/><i>Professor of Geobiology</i><br/>Jacob R. Waldbauer<br/><i>Postdoctoral Scholar in Environmental Science and Engineering</i></p>   |
| <p>K.III - Bioengineering/ Chemical Engineering<br/>306 Thomas<br/>2:50 - 3:10 PM</p> | <p><b>Jordan E. Maslov</b><br/><i>Robert J. McEliece and David Rutledge SURF Fellow</i></p> | <p>Microenvironments for Studying Extracellular Cues to Cell Behavior</p>                                   | <p>Chin-Lin Guo<br/><i>Assistant Professor of Bioengineering and Applied Physics</i><br/>Mingxing Ouyang<br/><i>Postdoctoral Scholar in Bioengineering and Applied Physics</i></p>   |
| <p>K.I - Bioengineering/ Chemical Engineering<br/>306 Thomas<br/>10:20 - 10:40 AM</p> | <p><b>Blaine R. Matulevich</b></p>  | <p>Electromyographic Control of Tactile-Sensing Enabled Prosthetic Hand</p>                                 | <p>Gerald E. Loeb<br/><i>Professor of Biomedical Engineering, University of Southern California</i><br/>Jeremy Fishel<br/><i>Graduate Student in Biomedical Engineering, University of Southern California</i><br/>Joel W. Burdick<br/><i>Professor of Mechanical Engineering and Bioengineering</i></p> |
| <p>F.II - Chemistry<br/>210 Baxter<br/>1:20 - 1:40 PM</p>                             | <p><b>Matthew Z. Mayers</b><br/><i>Reed and Ruth Brantley SURF Fellow</i></p>               | <p>Understanding the Effects of the Pulse Charging Method on Dendrite Growth in Lithium Metal Batteries</p> | <p>Thomas F. Miller III<br/><i>Assistant Professor of Chemistry</i><br/>Jakub Kaminski<br/><i>Postdoctoral Scholar in Chemistry</i></p>  |
| <p>S.II - Geological and Planetary Sciences<br/>142 Keck<br/>1:40 - 2:00 PM</p>       | <p><b>Stephen Meisenhelter</b><br/><i>Kiyo and Eiko Tomiyasu SURF Scholar</i></p>           | <p>Seismocloud: An Investigation Into Efficient SCEDC Earthquake Data Manipulation</p>                      | <p>Robert W. Clayton<br/><i>Professor of Geophysics</i><br/>Ellen Yu<br/><i>Products Manager, Southern California Earthquake Data Center</i></p>   |
| <p>G.I - Chemistry<br/>218 Baxter<br/>11:00 - 11:20 AM</p>                            | <p><b>Andrew C. Meng</b><br/><i>Richter Scholar</i></p>                                     | <p>Improving Redox Couple Mass Transport in Silicon Wire-Array Liquid Junction Solar Cells</p>              | <p>Nathan S. Lewis<br/><i>George L. Argyros Professor and Professor of Chemistry</i><br/>Chengxiang Xiang<br/><i>Postdoctoral Scholar in Chemistry</i></p>   |

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| F.I - Chemistry<br>210 Baxter<br>11:00 - 11:20 AM                       | <b>Rocio Mercado</b><br><i>Thomas C. Hays SURF Fellow</i>                | Syntheses of Fluorinated Cobalt Diglyoxime Complexes for Electrocatalytic Hydrogen Evolution  | Harry B. Gray<br><i>Arnold O. Beckman Professor of Chemistry</i><br>Michael J. Rose<br><i>Postdoctoral Scholar in Chemistry</i>   |
| R.I - Engineering and Applied Science<br>206 Thomas<br>11:00 - 11:20 AM | <b>Zeke Millikan</b>   | The Solar Decathlon: Improving House Performance Through Appliance Optimization   | Melany L. Hunt<br><i>Professor of Mechanical Engineering</i>  |
| S.III - Geological and Planetary Sciences<br>142 Keck<br>3:30 - 3:50 PM | <b>Sean M. Mills</b><br><i>Homer J. Stewart SURF Fellow</i>              | Exploiting the Weak Temperature Gradient Approximation for Climate Theory on Slowly Rotating, Tidally Locked Planets                            | Dorian Abbot<br><i>Assistant Professor of Geophysical Science, University of Chicago</i><br>Raymond T. Pierrehumbert<br><i>Louis Block Professor of Geophysical Sciences, University of Chicago</i><br>Yuk L. Yung<br><i>Professor of Planetary Science</i> |
| B.III - Biology<br>25 Baxter<br>2:30 - 2:50 PM                          | <b>Aarathi Minisandram</b><br><i>Franz and Anne Nierlich SURF Fellow</i> | Investigating the Role of miR125b in Hematopoiesis and Development of a Myeloid Leukemia  | David Baltimore<br><i>Robert Andrews Millikan Professor of Biology; Nobel Laureate; President Emeritus</i><br>Alex S. So<br><i>Postdoctoral Scholar in Biology</i>  |
| Poster Session<br>San Pasqual Mall<br>3:45 - 5:00 PM                    | <b>Neeli Mishra</b><br><i>Richter Scholar</i>                            | Proteomic Analysis of Histone Post-Translational Modifications and Their Cellular Targets   | Benjamin A. Garcia<br><i>Assistant Professor of Molecular Biology, Princeton University</i><br>Jesse L. Beauchamp<br><i>Mary and Charles Ferkel Professor of Chemistry</i>  |
| G.III - Chemistry<br>218 Baxter<br>3:30 - 3:50 PM                       | <b>Austin M. Moehle</b><br><i>Peter A. Lindstrom, Jr., SURF Fellow</i>   | Progress Toward the Synthesis of Gagunin E, a Polyoxygenated Terpene Isolated From the Sponge <i>Phorbas sp.</i>                                | Brian M. Stoltz<br><i>Ethel Wilson Bowles and Robert Bowles Professor of Chemistry</i><br>Grant M. Shibuya<br><i>Postdoctoral Scholar in Chemistry</i>  |
| D.II - Biology<br>127 Baxter<br>1:20 - 1:40 PM                          | <b>Mahati M. Mokkarala</b>   | Characterization of the Partial Duplication of the $\alpha 7$ Nicotinic Acetylcholine Gene (CHRFAM7A) and Its 2-Base Pair Deletion Polymorphism | Henry A. Lester<br><i>Bren Professor of Biology</i><br>Ying Wang<br><i>Postdoctoral Scholar in Biology</i>  |

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| D.III - Biology<br>127 Baxter<br>2:50 - 3:10 PM                  | <b><i>Marlyn J. Moore</i></b>   | Responses to Hallucinogen Administration in a Mouse Model of Maternal Immune Activation | Paul H. Patterson<br><i>Anne P. and Benjamin F. Biaggini Professor of Biological Sciences</i><br>Natalia V. Malkova<br><i>Postdoctoral Scholar in Biology</i>   |
| I.I - Chemical Engineering<br>237 Baxter<br>10:20 - 10:40 AM     | <b><i>Melody A. Morris</i></b>  | Low Cost, High-Density Protein Arrays for Sensors and Fuel Cells                        | Bradley D. Olsen<br><i>Assistant Professor of Chemical Engineering, Massachusetts Institute of Technology</i><br>Carla Thomas<br><i>Graduate Student in Chemical Engineering, Massachusetts Institute of Technology</i><br>David A. Tirrell<br><i>Ross McCollum-William H. Corcoran Professor and Professor of Chemistry and Chemical Engineering</i> |
| Poster Session<br>San Pasqual Mall<br>3:45 - 5:00 PM             | <b><i>Eric S. Mukherjee</i></b>   | The Incidence of Active Galactic Nuclei in Galaxy Groups                                | Christine Jones<br><i>Senior Astrophysicist, Harvard-Smithsonian Center for Astrophysics</i><br>Andy D. Goulding<br><i>Postdoctoral Research Fellow, Smithsonian Astrophysical Observatory</i><br>Fiona A. Harrison<br><i>Professor of Physics and Astronomy</i>  |
| M.III - Electrical Engineering<br>102 Spalding<br>3:30 - 3:50 PM | <b><i>Nandini Mukherjee</i></b>   | Continuous On-Chip Imaging of <i>C. elegans</i> Through Optofluidic Microscopy          | Changhuei Yang<br><i>Professor of Electrical Engineering and Bioengineering</i><br>Seung Ah Lee<br><i>Graduate Student in Electrical Engineering</i>  |
| W.II - Physics/Astronomy<br>106 Spalding<br>1:40 - 2:00 PM       | <b><i>John C. Napp</i></b><br><i>Richter Scholar</i>                            | Density of States of Nematic Emulsion   | Arjun G. Yodh<br><i>James M. Skinner Professor of Science, University of Pennsylvania</i><br>Fiona A. Harrison<br><i>Professor of Physics and Astronomy</i>   |
| A.I - Biology<br>19 Baxter<br>10:40 - 11:00 AM                   | <b><i>Pushpa Neppala</i></b><br><i>Laurence J. Stuppy</i><br><i>SURF Fellow</i> | Investigating the Protein and RNA Components of the Chromatoid Body                     | Alexei Aravin<br><i>Assistant Professor of Biology</i><br>Evelyn Stuwe<br><i>Student in Biology</i>   |

K.II - Bioengineering/  
Chemical Engineering  
306 Thomas  
1:20 - 1:40 PM

**Paul D. Nguyen**  
*Dr. Vincent A. Marinkovich*  
*'55 Memorial 2011 SURF*  
*Fellow*

Programmable Genetic  
Regulation by sRNA-mRNA  
Hybridization

Richard M. Murray  
*Thomas E. and Doris Everhart*  
*Professor of Control and*  
*Dynamical Systems and*  
*Bioengineering*  
Joseph T. Meyerowitz  
*Graduate Student in*  
*Biochemistry*

Q.III - Aeronautics/  
Mechanical Engineering  
306 Firestone  
3:10 - 3:30 PM

**John J. Odell**

Experimental Investigation  
Into Shock Wave Boundary  
Layer Interactions of  
Reflected Detonation Waves

Joseph E. Shepherd  
*C.L. "Kelly" Johnson Professor*  
*of Aeronautics and Mechanical*  
*Engineering*  
Jason Damazo  
*Graduate Student in*  
*Aeronautics*

N.I - Electrical Engineering  
120 Powell-Booth  
10:20 - 10:40 AM

**Nicholas C. Ogden**

Microfluidic Sensors With  
Integrated Germanium  
Photodetectors

Axel Scherer  
*Bernard A. Neches Professor of*  
*Electrical Engineering, Applied*  
*Physics, and Physics*  
Jingqing Huang  
*Graduate Student in Electrical*  
*Engineering*

E.III - Biology  
128 Baxter  
2:30 - 2:50 PM

**Arpit Panda**  
*Amgen Scholar*

The Role of N-Terminal  
Acetylation as a Degradation  
Signal

Alexander J. Varshavsky  
*Howard and Gwen Laurie*  
*Smits Professor of Cell Biology*

A.III - Biology  
19 Baxter  
2:30 - 2:50 PM

**Ketaki M. Panse**  
*Larson Scholar*

Monitoring Searching  
Behavior and Arousal in  
*Drosophila melanogaster*

David J. Anderson  
*Seymour Benzer Professor of*  
*Biology; Investigator, Howard*  
*Hughes Medical Institute*  
Hidehio Inagaki  
*Graduate Student in Biology*

I.II - Chemical Engineering  
237 Baxter  
2:00 - 2:20 PM

**Sungjin Park**

Introduction of the Azide  
Chemical Reporter to Newly  
Synthesized Fatty Acids for  
Lipid Detection and  
Antibiotic Screening

David A. Tirrell  
*Ross McCollum-William H.*  
*Corcoran Professor and*  
*Professor of Chemistry and*  
*Chemical Engineering*  
Janek Szychowski  
*Postdoctoral Scholar in*  
*Chemical Engineering*

B.I - Biology  
25 Baxter  
10:20 - 10:40 AM

**Brian N. Peng**  
*Rose Hills Foundation*  
*SURF Fellow*

Transcription Factor Sox10  
May Be Required for  
Microvillous Neuron  
Formation in the Zebrafish  
Olfactory System

Marianne Bronner-Fraser  
*Albert Billings Ruddock*  
*Professor of Biology*  
Ankur Saxena  
*Postdoctoral Scholar in Biology*

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| V.II - Mathematics<br>114 Steele<br>1:00 - 1:20 PM                              | <b>Christopher A. Perez</b><br><i>Mellon Mays SURF Fellow</i> | Siegel Modular Varieties:<br>Arithmetic Invariants, Cusps,<br>and Real Points   | Andrei Jorza<br><i>Olga Tausky-John Todd</i><br><i>Instructor of Mathematics</i>  |
| U.I - Astronomy<br>101 Guggenheim<br>11:20 - 11:40 AM                           | <b>John A. Pharo</b>  | Hot Dust in Bright Galaxies:<br>Using Mid-Infrared<br>Photometry to Determine the<br>Sources of Extragalactic<br>Radiation and Spectroscopy                             | Lee Armus<br><i>Senior Research Scientist in</i><br><i>IPAC</i>   |
| G.III - Chemistry<br>218 Baxter<br>2:50 - 3:10 PM                               | <b>Samantha M. Piszkiwicz</b>                                 | Elucidation of the<br>Architecture of a Protein<br>Aggregate: The Role of<br>Binding Interactions and<br>Intermolecular Packing<br>Interactions Within the<br>Aggregate | Shu-ou Shan<br><i>Assistant Professor of Chemistry</i><br>Thang Nguyen<br><i>Graduate Student in Chemistry</i><br><i>and Chemical Engineering</i>                                       |
| W.III - Physics/Astronomy<br>106 Spalding<br>3:10 - 3:30 PM                     | <b>Ahalya Prabhakar</b>                                       | Developing and Optimizing<br>Polymer-Actuated<br>Microfluidic Valves for<br>Portable Applications   | Michael L. Roukes<br><i>Professor of Physics, Applied</i><br><i>Physics, and Bioengineering</i><br>Blake W. Axelrod<br><i>Research Engineer in</i><br><i>Consensed Matter Physics</i>   |
| K.I - Bioengineering/<br>Chemical Engineering<br>306 Thomas<br>10:40 - 11:00 AM | <b>Amy C. Proctor</b>   | Corneal Fibroblast Migration<br>on Cross-Linked Gelatin<br>Hydrogels With Nanofibrous<br>Scaffolds  | Julia A. Kornfield<br><i>Professor of Chemical</i><br><i>Engineering</i><br>Loddie L. Foose<br><i>Postdoctoral Scholar in</i><br><i>Chemistry</i>                                       |
| G.I - Chemistry<br>218 Baxter<br>10:40 - 11:00 AM                               | <b>Suyeon Pyo</b>   | Surface Imaging of Mixed<br>Methyl/Thienyl Monolayers<br>on Si(111)   | Nathan S. Lewis<br><i>George L. Argyros Professor and</i><br><i>Professor of Chemistry</i><br>Leslie E. O'Leary<br><i>Graduate Student in Chemistry</i>                                 |
| D.III - Biology<br>127 Baxter<br>3:10 - 3:30 PM                                 | <b>Mike Qian</b><br><i>Arthur R. Adams SURF Fellow</i>        | Regulation of Huntingtin and<br>REST by the I $\kappa$ B Kinase<br>Complex in Huntington's<br>Disease   | Paul H. Patterson<br><i>Anne P. and Benjamin F.</i><br><i>Biaggini Professor of Biological</i><br><i>Sciences</i><br>Ali Khoshnan<br><i>Senior Research Fellow in</i><br><i>Biology</i> |

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| H.II - Chemistry/<br>Chemical Engineering<br>228 Baxter<br>1:00 - 1:20 PM         | <b><i>Misha Raffiee</i></b>  | A Study of the Binding Affinities of the Family I Carbohydrate-Binding Modules (CBM) and the Characterization of the CBM Chimeras Constructed Using SCHEMA Recombination | Frances H. Arnold<br><i>Dick and Barbara Dickinson Professor of Chemical Engineering, Bioengineering, and Biochemistry</i><br>Indira Wu<br><i>Graduate Student in Bioengineering</i> |
| C.III - Biology<br>125 Baxter<br>2:50 - 3:10 PM                                   | <b><i>Benjamin Razon</i></b>   | Accelerating Neuronal Model Simulations Using GPGPU Techniques   | Alon Korngreen<br><i>Senior Lecturer of Neurophysiology, Bar-Ilan University</i><br>Thomas F. Miller III<br><i>Assistant Professor of Chemistry</i>                                  |
| J.I - Bioengineering<br>301 Thomas<br>11:20 - 11:40 AM                            | <b><i>Caitlin A. Regan</i></b><br><i>Amgen Scholar</i>                     | DNA Ejection Mechanisms of Bacteriophage Lambda  | Rob B. Phillips<br><i>Professor of Applied Physics and Mechanical Engineering</i><br>David A. Van Valen<br><i>Postdoctoral Scholar in Applied Physics</i>                            |
| V.I - Mathematics<br>114 Steele<br>10:20 - 10:40 AM                               | <b><i>Stephanie N. Reyes</i></b>   | Algebraic Hecke Characters Which Are Rational Over $\mathbb{Q}$  | Matthias Flach<br><i>Professor of Mathematics</i>  |
| S.III - Geological and Planetary Sciences<br>142 Keck<br>2:50 - 3:10 PM           | <b><i>Alexander D. Rider</i></b><br><i>James J. Morgan SURF Fellow</i>     | Paleoclimate Insights From the U-Th Isotope Geochemistry of the Buda Cave System   | Jess F. Adkins<br><i>Professor of Geochemistry and Global Environmental Science</i>  |
| U.I - Astronomy<br>101 Guggenheim<br>10:40 - 11:00 AM                             | <b><i>Joanna R. Robaszewski</i></b>  | Hot Flares From Cool Stars   | S. George Djorgovski<br><i>Professor of Astronomy</i><br>Andrew J. Drake<br><i>Staff Scientist in CACR</i>   |
| Q.I - Aeronautics/<br>Mechanical Engineering<br>306 Firestone<br>10:40 - 11:00 AM | <b><i>Nicholas A. Robertson</i></b><br><i>Marcella Bonsall SURF Fellow</i> | Error Quantification in Simulations of Variable Density Low Mach Number Turbulent Flows  | Guillaume Blanquart<br><i>Assistant Professor of Mechanical Engineering</i>  |
| Poster Session<br>San Pasqual Mall<br>3:45 - 5:00 PM                              | <b><i>Andrew C. Rodriguez</i></b>  | Using Uncertainty Quantification to Maximize the Efficiency of Parallel Resources  | Michael M. McKerns<br><i>Project Manager in Materials Science</i>  |
| Poster Session<br>San Pasqual Mall<br>3:45 - 5:00 PM                              | <b><i>Errika C. Romero</i></b><br><i>Sung-Hsien Chen Shih SURF Fellow</i>  | Creating a Peptide Capture Agent Against IgG Fc  | James R. Heath<br><i>Elizabeth W. Gilloon Professor and Professor of Chemistry</i><br>Jessica A. Pfeilsticker<br><i>Graduate Student in Chemistry and Chemical Engineering</i>       |

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| U.III - Astronomy<br>101 Guggenheim<br>2:50 - 3:10 PM                          | <b><i>Iva Rreza</i></b>  | Keck Spectroscopy of X-Ray Sources in the Ssa22 Field                                   | Fiona A. Harrison<br><i>Professor of Physics and Astronomy</i>   |
| J.II - Bioengineering<br>301 Thomas<br>2:00 - 2:20 PM                          | <b><i>Stephanie Rae P. Samson</i></b>  | Carbon Nanotube Arrays for Drug Delivery and Transport Studies                          | Mory Gharib<br><i>Hans W. Liepmann Professor of Aeronautics and Professor of Bioinspired Engineering</i><br>Adrianus Indrat Aria<br><i>Graduate Student in Aeronautics</i>                               |
| J.III - Bioengineering<br>301 Thomas<br>2:30 - 2:50 PM                         | <b><i>Laura F. Santoso</i></b>   | An <i>in vitro</i> Study of the Hemodynamics of Valvulogenesis                          | Mory Gharib<br><i>Hans W. Liepmann Professor of Aeronautics and Professor of Bioinspired Engineering</i><br>Derek G. Rinderknecht<br><i>Postdoctoral Scholar in Bioengineering</i>                       |
| K.II - Bioengineering/<br>Chemical Engineering<br>306 Thomas<br>1:40 - 2:00 PM | <b><i>Keshav S. Sapatnekar</i></b>   | Design and Modeling of an Autoinhibiting Biomolecular Circuit Incorporating Scaffolding | Richard M. Murray<br><i>Thomas E. and Doris Everhart Professor of Control and Dynamical Systems and Bioengineering</i><br>Emmanuel Lorenzo C. de Los Santos<br><i>Graduate Student in Bioengineering</i> |
| X.III - Physics<br>113 Spalding<br>2:50 - 3:10 PM                              | <b><i>Travis L. Scholten</i></b><br><i>Robert L. Blinkenberg SURF Fellow</i> | Spectral Gap Scaling of One Dimensional Quantum Spin Chains                             | John P. Preskill<br><i>Richard P. Feynman Professor of Theoretical Physics</i><br>Spyridon Michalakis<br><i>Postdoctoral Scholar in Theoretical Physics</i>  |
| A.III - Biology<br>19 Baxter<br>3:10 - 3:30 PM                                 | <b><i>Jonathan S. Schor</i></b><br><i>Larson Scholar</i>                     | Boy Meets Boy: A Study of Male-Male Aggression in <i>Drosophila melanogaster</i>        | David J. Anderson<br><i>Seymour Benzer Professor of Biology; Investigator, Howard Hughes Medical Institute</i><br>Liming Wang<br><i>Graduate Student in Biology</i>                                      |
| H.III - Chemistry/<br>Chemical Engineering<br>228 Baxter<br>2:30 - 2:50 PM     | <b><i>Stanford J. Schor</i></b><br><i>Frank W. Wood SURF Fellow</i>          | Improving Temperature Stability of <i>HimarI</i> Transposase                            | Frances H. Arnold<br><i>Dick and Barbara Dickinson Professor of Chemical Engineering, Bioengineering, and Biochemistry</i><br>Mary F. Farrow<br><i>Postdoctoral Scholar in Biochemistry</i>              |

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| X.I - Physics<br>113 Spalding<br>10:40 - 11:00 AM                          | <b>James M. Scott</b><br><i>Jean J. Dixon SURF Fellow</i>           | Analysis of Energy Estimation<br>From NOvA Detector Data  | Ryan B. Patterson<br><i>Assistant Professor of Physics</i>  |
| Poster Session<br>San Pasqual Mall<br>3:45 - 5:00 PM                       | <b>Bhargav G. Setlur</b>  | Fabrication of Silicon-Based<br>Nanopore Membranes for<br>DNA Nucleotide<br>Characterization            | Axel Scherer<br><i>Bernard A. Neches Professor of<br/>Electrical Engineering, Applied<br/>Physics, and Physics</i><br>Aditya Rajagopal<br><i>Graduate Student in Electrical<br/>Engineering</i>   |
| J.III - Bioengineering<br>301 Thomas<br>2:50 - 3:10 PM                     | <b>Ju Ying Shang</b>  | Functionalization and<br>Biological Application of<br>Carbon Nanotubes                                  | Mory Gharib<br><i>Hans W. Liepmann Professor<br/>of Aeronautics and Professor of<br/>Bioinspired Engineering</i><br>Derek G. Rinderknecht<br><i>Postdoctoral Scholar in<br/>Bioengineering</i>  |
| U.I - Astronomy<br>101 Guggenheim<br>11:00 - 11:20 AM                      | <b>Nihar Sharma</b>   | Classifying Things That Go<br>*BANG!* in the Night  | S. George Djorgovski<br><i>Professor of Astronomy</i><br>Ciro Donalek<br><i>Postdoctoral Scholar in<br/>Astronomy</i>   |
| J.III - Bioengineering<br>301 Thomas<br>3:30 - 3:50 PM                     | <b>Amanda N. Shelton</b>  | Bioremediation of Endocrine<br>Disrupting Compounds Using<br>the Synthetic Biology<br>BioBrick Standard | Richard M. Murray<br><i>Thomas E. and Doris Everhart<br/>Professor of Control and<br/>Dynamical Systems and<br/>Bioengineering</i><br>Joseph T. Meyerowitz<br><i>Graduate Student in<br/>Biochemistry</i><br>Emmanuel Lorenzo C.<br>de Los Santos<br><i>Graduate Student in<br/>Bioengineering</i><br>Nathaniel R. Glasser<br><i>Graduate Student in<br/>Biochemistry</i> |
| G.III - Chemistry<br>218 Baxter<br>3:10 - 3:30 PM                          | <b>Jeff Shen</b>  | A Catalytic Enantioselective<br>Approach to the Synthesis of<br>Physovenine                             | Brian M. Stoltz<br><i>Ethel Wilson Bowles and Robert<br/>Bowles Professor of Chemistry</i><br>Boram D. Hong<br><i>Graduate Student in Chemistry<br/>and Chemical Engineering</i>  |
| R.I - Engineering and<br>Applied Science<br>206 Thomas<br>10:00 - 10:20 AM | <b>Hong Sheng</b><br><i>Kiyo and Eiko Tomiyasu<br/>SURF Scholar</i> | 3-D Visualization and<br>Modeling of Building<br>Shaking During Earthquakes                             | Monica D. Kohler<br><i>Senior Research Fellow in<br/>Mechanical and Civil<br/>Engineering</i>   |

Poster Session  
San Pasqual Mall  
3:45 - 5:00 PM

***Jeffrey D. Sherman***

Construction of a Polarization  
Sensitive Optical Coherence  
Tomography System

Scott E. Fraser  
*Anna L. Rosen Professor of  
Biology and Professor of  
Bioengineering*  
Reza Motaghian Nezam  
*Senior Postdoctoral Fellow in  
Biology*

Q.I - Aeronautics/  
Mechanical Engineering  
306 Firestone  
11:00 - 11:20 AM

***Kevin Shi***  
*The Associates SURF Fellow*

Analysis of Soot Evolution  
Using a Combined Fluid  
Mechanics and Chemical  
Model

Guillaume Blanquart  
*Assistant Professor of  
Mechanical Engineering*

F.I - Chemistry  
210 Baxter  
10:20 - 10:40 AM

***Dong Woo Shin***

Electron Transfer Studies of  
the Double Tryptophan  
Azurin Mutant  
H107W108W110 (All Phe)

Harry B. Gray  
*Arnold O. Beckman Professor of  
Chemistry*  
Heather R. Williamson  
*Graduate Student in Chemistry*

W.II - Physics/Astronomy  
106 Spalding  
1:20 - 1:40 PM

***Gregory V. Simonian***  
*Rose Hills Foundation  
SURF Fellow*

Cosmic Sparklers: A  
Systematic Search for  
Cataclysmic Variables Using  
the Palomar Transient  
Factory

Thomas A. Prince  
*Professor of Physics*

F.II - Chemistry  
210 Baxter  
1:00 - 1:20 PM

***Prastuti Singh***

Reduction of Thermal  
Conductivity in Graphene

James R. Heath  
*Elizabeth W. Gilloon Professor  
and Professor of Chemistry*  
Slobodan Mitrovic  
*Senior Postdoctoral Scholar in  
Chemistry*

X.I - Physics  
113 Spalding  
10:00 - 10:20 AM

***Daniel E. Sotolongo***  
*Bob and Carole Chapman  
Minority SURF Fellow*

Construction and Testing of  
Low-Energy  $\alpha$ - and  $\beta$ -Particle-  
Tracking Detector Prototype

Sunil Golwala  
*Professor of Physics*  
Robert H. Nelson  
*Postdoctoral Scholar in Physics*

Poster Session  
San Pasqual Mall  
3:45 - 5:00 PM

***Kelsey M. Spaur***

Formation of Membrane  
Protein Nanocrystals  
Through Laminar Flow

Michael H. Stowell  
*Associate Professor of Biology,  
University of Colorado, Boulder*  
Rob B. Phillips  
*Professor of Applied Physics  
and Mechanical Engineering*

E.I- Biology  
128 Baxter  
11:00 - 11:20 AM

***Stasja Stanisic***

Neural Predictors of  
Bargaining Decision Making  
Using Hyperscanning EEG

Shinsuke Shimojo  
*Gertrude Baltimore Professor of  
Experimental Psychology*  
Kyongsik Yun  
*Postdoctoral Scholar in Biology*

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|--|---|--|---|
| B.III - Biology<br>25 Baxter<br>2:50 - 3:10 PM                               | <b>Julia Y. Su</b>  | The Mechanism Behind<br>I-SceI Injection Method for<br><i>Strongylocentrotus purpuratus</i>  | Eric H. Davidson<br><i>Norman Chandler Professor of<br/>Cell Biology</i><br>Miao Cui<br><i>Graduate Student in Biology</i>  |
| H.I - Chemistry/<br>Chemical Engineering<br>228 Baxter<br>11:00 - 11:20 AM   | <b>Vincentius J. Suhardi</b><br><i>Richter Scholar</i>                | C-H Activation of Methane<br>Using Homogeneous<br>Rh-Based Catalysts:<br>A Computational Study                                       | William A. Goddard III<br><i>Charles and Mary Ferkel<br/>Professor of Chemistry,<br/>Materials Science, and Applied<br/>Physics</i><br>Robert J. Nielsen<br><i>Scientific Researcher in<br/>Chemistry</i>   |
| Poster Session<br>San Pasqual Mall<br>3:45 - 5:00 PM                         | <b>Aiden Sullivan</b>   | Optical Feedback Cooling of<br>a "Zipper" Optomechanical<br>Cavity   | Oskar J. Painter<br><i>Professor of Applied Physics</i><br>Alexander G. Krause<br><i>Graduate Student in Applied<br/>Physics</i>  |
| W.I - Physics/Astronomy<br>106 Spalding<br>11:00 - 11:20 AM                  | <b>Qunchao Sun</b>  | Fabrication and Studies of<br>Overdoped High-<br>Temperature Super-<br>conducting Cuprate Thin<br>Films $Y_{1-x}Ca_xBa_2Cu_3O_{7.8}$ | Nai-Chang Yeh<br><i>Professor of Physics</i>  |
| H.III - Chemistry/<br>Chemical Engineering<br>228 Baxter<br>2:50 - 3:10 PM   | <b>Sabrina I. Sun</b><br><i>Rose Hills Foundation<br/>SURF Fellow</i> | Directed Evolution of Alcohol<br>Dehydrogenases for Aldehyde<br>Resistance   | Frances H. Arnold<br><i>Dick and Barbara Dickinson<br/>Professor of Chemical<br/>Engineering, Bioengineering,<br/>and Biochemistry</i><br>Devin L. Trudeau<br><i>Graduate Student in<br/>Bioengineering</i> |
| G.II - Chemistry<br>218 Baxter<br>2:00 - 2:20 PM                             | <b>Dylan J. Sures</b>   | Investigating Bismuth Oxide<br>as a Photocatalyst for Water-<br>Splitting  | Jay R. Winkler<br><i>Faculty Associate and Lecturer<br/>in Chemistry</i>  |
| P.II - Materials Science/<br>Applied Physics<br>102 Steele<br>1:00 - 1:20 PM | <b>Jessica G. Swallow</b><br><i>Marcella Bonsall SURF Fellow</i>      | Thermoelectric Optimization<br>in $Sr_3AlSb_3$ and $Ca_3In_2Sb_6$<br>Through Control of Carrier<br>Concentration                     | G. Jeffrey Snyder<br><i>Senior Member of the Technical<br/>Staff, JPL; Faculty Associate in<br/>Materials Science</i><br>Alexandra Zevalkin<br><i>Graduate Student in Materials<br/>Science</i>             |
| E.I - Biology<br>128 Baxter<br>11:20 - 11:40 AM                              | <b>Alison Tan</b>   | Viral Targeting of<br>Dopaminergic Neurons   | Athanassios G. Siapas<br><i>Professor of Computation and<br/>Neural Systems</i><br>Maria Papadopoulou<br><i>Postdoctoral Scholar in Biology</i>   |

J.II - Bioengineering  
301 Thomas  
1:20 - 1:40 PM

**Michelle Tang**  
*Heather and Paul Haaga  
SURF Fellow*

Construction and  
Characterization of Artificial  
Vessels for *in vitro* Arterial  
Wave Dynamic Studies

Mory Gharib  
*Hans W. Liepmann Professor  
of Aeronautics and Professor of  
Bioinspired Engineering*  
Niema M. Pahlevan  
*Graduate Student in  
Bioengineering*

J.I - Bioengineering  
301 Thomas  
11:00 - 11:20 AM

**Nicole N. Thadani**

Bioremediation of Endocrine  
Disruptors From Water Using  
Genetically Modified  
*Escherichia coli*

Richard M. Murray  
*Thomas E. and Doris Everhart  
Professor of Control and  
Dynamical Systems and  
Bioengineering*  
Joseph T. Meyerowitz  
*Graduate Student in  
Biochemistry*  
Emmanuel Lorenzo C.  
de Los Santos  
*Graduate Student in  
Bioengineering*  
Nathaniel R. Glasser  
*Graduate Student in  
Biochemistry*

V.II - Mathematics  
114 Steele  
2:00 - 2:20 PM

**Ryan G. Thorngren**

Entropy and the Witt  
Construction (or, Universal  
Structures in Elementary  
Algebra)

Matilde Marcolli  
*Professor of Mathematics*

Q.II - Aeronautics/  
Mechanical Engineering  
306 Firestone  
2:00 - 2:20 PM

**Vicky Y. Tian**  
*Lester Lees Aeronautics  
SURF Fellow*

Split Stream Flow Past a  
Blunt Trailing Edge With  
Application to Combustion  
Instabilities

Beverley J. McKeon  
*Assistant Professor of  
Aeronautics*  
Ivett A. Leyva  
*Senior Aerospace Engineer, Air  
Force Research Laboratory*

U.II - Astronomy  
101 Guggenheim  
1:20 - 1:40 PM

**Suk Sien Tie**

Optical Counterparts to  
Unknown ROSAT  
(Röntgensatellit) X-Ray  
Sources

Shrinivas R. Kulkarni  
*John D. and Catherine T.  
MacArthur Professor of  
Astronomy and Planetary  
Science*  
Varun Bhalerao  
*Graduate Student in  
Astronomy*

X.III - Physics  
113 Spalding  
2:30 - 2:50 PM

**Mohit Tiwari**

Pauli-Based Local  
Commuting Projector Codes

John P. Preskill  
*Richard P. Feynman Professor  
of Theoretical Physics*  
Jeongwan Haah  
*Graduate Student in Physics*

R.I - Engineering and Applied Science  
206 Thomas  
10:20 - 10:40 AM

***Stephanie Tsuei***

Implementation of a Distributed Camera Control Protocol

Richard M. Murray  
*Thomas E. and Doris Everhart Professor of Control and Dynamical Systems and Bioengineering*  
Necmiye Özay  
*Postdoctoral Scholar in Computing and Mathematical Sciences*  
Ufuk Topcu  
*Postdoctoral Scholar in Computing and Mathematical Sciences*

Poster Session  
San Pasqual Mall  
3:45 - 5:00 PM

***Adam R. Ullah***  
East Los Angeles College  
*NSF Center for the Science and Engineering of Materials MURF Fellow*

Cryogenic Impact Testing of Tin (Sn) Solders and Bulk Metallic Glass Composites

Marios D. Demetriou  
*Senior Research Fellow in Materials Science*  
Scott Roberts  
*Graduate Student in Materials Science*  
Armando M. Rivera-Figueroa  
*Assistant Professor of Chemistry, East Los Angeles College*

M.I - Electrical Engineering  
102 Spalding  
10:40 - 11:00 AM

***Saraswathi J. Venkatesh***  
*Richter Scholar*

Applications of the Dawid and Skene Model to Discrete Image Annotation

Pietro Perona  
*Allen E. Puckett Professor of Electrical Engineering*  
Peter Welinder  
*Graduate Student in Computation and Neural Systems*

K.III - Bioengineering/  
Chemical Engineering  
306 Thomas  
2:30 - 2:50 PM

***Malvika Verma***  
*Richter Scholar*

Structured Illumination Microscopy for Improved Lateral and Axial Resolution

Chin-Lin Guo  
*Assistant Professor of Bioengineering and Applied Physics*  
Jiun-Yann Yu  
*Graduate Student in Bioengineering*

W.III - Physics/Astronomy  
106 Spalding  
2:50 - 3:10 PM

***Eugene A. Vinitzky***

Development of PCR (Polymerase Chain Reaction) in Microfluidics

Michael L. Roukes  
*Professor of Physics, Applied Physics, and Bioengineering*  
Jessica L. Arlett  
*Staff Scientist in Condensed Matter Physics*

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|---|--|---|---|
| <p>I.III - Chemical Engineering<br/>237 Baxter<br/>2:50 - 3:10 PM</p>               | <p><b>Alex J. Wang</b></p>   | <p>Characterization of Small-Molecules That Elevate Reactive Oxygen Species in Cancer Cell Lines</p>                      | <p>Stuart L. Schreiber<br/><i>Morris Loeb Professor of Chemistry; HHMI Principal Investigator; Director, Chemical Biology, The Broad Institute</i><br/>Drew J. Adams<br/><i>Postdoctoral Scholar in Chemical Biology, The Broad Institute</i><br/>David A. Tirrell<br/><i>Ross McCollum-William H. Corcoran Professor and Professor of Chemistry and Chemical Engineering</i></p> |
| <p>Poster Session<br/>San Pasqual Mall<br/>3:45 - 5:00 PM</p>                       | <p><b>Angie Wang</b><br/><i>Rose Hills Foundation<br/>SURF Fellow</i></p>    | <p>Test Bench for a Retinal Prosthesis Neurostimulator IC</p>   | <p>Azita Emami<br/><i>Assistant Professor of Electrical Engineering</i><br/>Manuel A. Monge Osorio<br/><i>Graduate Student in Electrical Engineering</i></p>  |
| <p>H.II - Chemistry/<br/>Chemical Engineering<br/>228 Baxter<br/>2:00 - 2:20 PM</p> | <p><b>Eric E. Wang</b></p>   | <p>Expression of a Thermostable TPP-Dependent Enzyme and Characterization of Its Decarboxylase Activity</p>               | <p>Frances H. Arnold<br/><i>Dick and Barbara Dickinson Professor of Chemical Engineering, Bioengineering, and Biochemistry</i><br/>Kersten S. Rabe<br/><i>Postdoctoral Scholar in Chemical Engineering</i></p>  |
| <p>W.I - Physics/Astronomy<br/>106 Spalding<br/>10:00 - 10:20 AM</p>                | <p><b>Jing Wang</b><br/><i>The Aerospace Corporation<br/>SURF Fellow</i></p> | <p>Scattering of Giant Radio Pulses From the Crab Pulsar by the Interstellar Medium</p>                                   | <p>Anthony C. Readhead<br/><i>Barbara and Stanley R. Rawn, Jr., Professor of Astronomy</i><br/>Glenn Jones<br/><i>Graduate Student in Electrical Engineering</i></p>  |
| <p>C.I - Biology<br/>125 Baxter<br/>11:00 - 11:20 AM</p>                            | <p><b>Kening Wang</b></p>  | <p>Optical Design Optimization and Testing of an Intracavitary Microscope-Mounted Optical Coherence Tomography System</p> | <p>Joseph Izatt<br/><i>Professor of Biomedical Engineering, Duke University</i><br/>Scott E. Fraser<br/><i>Anna L. Rosen Professor of Biology and Professor of Bioengineering</i></p>   |
| <p>A.II - Biology<br/>19 Baxter<br/>1:20 - 1:40 PM</p>                              | <p><b>Yuchen Wang</b></p>  | <p>Verification of Protein Receptors Using Double Florescent Immunohistochemistry on VEGFs</p>                            | <p>John M. Allman<br/><i>Frank P. Hixon Professor of Neurobiology</i><br/>Nicole A. Tetreault<br/><i>Graduate Student in Biology</i></p>  |

Poster Session  
San Pasqual Mall  
3:45 - 5:00 PM

**Amy Wat**  
California State University,  
Los Angeles  
*NSF Center for the Science and  
Engineering of Materials  
MURF Fellow*

Strong and Tough Graphene-  
Polymer Composites

Julia R. Greer  
*Assistant Professor of Materials  
Science*  
Xun Gu  
*Graduate Student in Chemical  
Engineering*  
Frank A. Gomez  
*Professor of Chemistry,  
California State University,  
Los Angeles*

N.I - Electrical Engineering  
120 Powell-Booth  
10:00 - 10:20 AM

**Alexander S. Wein**

Sub-Nyquist Sampling of  
Action Potentials

Lakshminarayan Srinivasan  
*Principal Investigator, Neural  
Signal Processing Laboratory,  
University of California,  
Los Angeles*  
David B. Rutledge  
*Kiyo and Eiko Tomiyasu  
Professor of Electrical  
Engineering*

L.I - Computing  
100 Powell-Booth  
11:20 - 11:40 AM

**Jody C. Wen**

Analysis of Performance for  
Adaptive Mesh Refinement

Dan I. Meiron  
*Fletcher Jones Professor of  
Aeronautics and Applied and  
Computational Mathematics*

P.I - Materials Science/  
Applied Physics  
102 Steele  
10:00 - 10:20 AM

**Kelsey A. Whitesell**  
University of Colorado,  
Boulder

Enhanced Absorption in  
Thin Film Photonic Crystal  
Silicon Solar Cells

Harry A. Atwater  
*Howard Hughes Professor and  
Professor of Applied Physics  
and Materials Science*  
Jonathan Grandier  
*Postdoctoral Scholar in Applied  
Physics and Materials Science*

P.II - Materials Science/  
Applied Physics  
102 Steele  
1:20 - 1:40 PM

**Alexander W. Wilson**

Low-Temperature Seebeck  
Measurement System

G. Jeffrey Snyder  
*Senior Member of the Technical  
Staff, JPL; Faculty Associate in  
Materials Science*  
Nick Heinz  
*Graduate Student in Materials  
Science*

V.I - Mathematics  
114 Steele  
10:40 - 11:00 AM

**Nicholas D. Woodward**

On the Choice Number of  
the Hoffman-Singleton  
Graph and the Union of a  
Graph With a Matching

Niranjan Balachandran  
*Harry Bateman Research  
Instructor of Mathematics*

E.II - Biology  
128 Baxter  
2:00 - 2:20 PM

**Alexander H. Wu**  
*Rose Hills Foundation  
SURF Fellow*

An Investigation of the  
AF Face Patch Region in  
Primates

Doris Tsao  
*Assistant Professor of Biology*  
Piercesare Grimaldi  
*Postdoctoral Scholar in Biology*

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| <p>P.I - Materials Science/<br/>Applied Physics<br/>102 Steele<br/>10:40 - 11:00 AM</p> | <p><b>Anjian Wu</b></p>                                | <p>Growth and Characterization<br/>of Crystalline Titanium<br/>Dioxide Thin Films for<br/>Photocatalytic Applications</p>          | <p>Harry A. Atwater<br/><i>Howard Hughes Professor and<br/>Professor of Applied Physics<br/>and Materials Science</i><br/>Christopher T. Chen<br/><i>Graduate Student in Materials<br/>Science</i></p>   |
| <p>Poster Session<br/>San Pasqual Mall<br/>3:45 - 5:00 PM</p>                           | <p><b>Christine E. Wu</b><br/><i>Amgen Scholar</i></p> | <p>Establishing an Efficient Cell<br/>Sorting and Release Protocol</p>   | <p>James R. Heath<br/><i>Elizabeth W. Gilloon Professor<br/>and Professor of Chemistry</i><br/>Young Shik Shin<br/><i>Visitor in Chemistry</i></p>   |
| <p>H.II - Chemistry/<br/>Chemical Engineering<br/>228 Baxter<br/>1:20 - 1:40 PM</p>     | <p><b>Timothy M. Wu</b></p>                            | <p>Engineering Thermostable<br/>Synthetic Cellulase Mixtures</p>   | <p>Frances H. Arnold<br/><i>Dick and Barbara Dickinson<br/>Professor of Chemical<br/>Engineering, Bioengineering,<br/>and Biochemistry</i><br/>Matthew P. Smith<br/><i>Graduate Student in<br/>Bioengineering</i></p>  |
| <p>U.III - Astronomy<br/>101 Guggenheim<br/>3:10 - 3:30 PM</p>                          | <p><b>Yue Wu</b></p>                                   | <p>NuSTAR Pixel<br/>Characterization</p>   | <p>Fiona A. Harrison<br/><i>Professor of Physics and<br/>Astronomy</i><br/>Varun Bhalerao<br/><i>Graduate Student in<br/>Astronomy</i></p>   |
| <p>D.II - Biology<br/>127 Baxter<br/>1:40 - 2:00 PM</p>                                 | <p><b>Zhaoying Xian</b></p>                            | <p>Extracellular Sulfatase-2<br/>Levels Are Differentially<br/>Expressed in Idiopathic<br/>Pulmonary Arterial<br/>Hypertension</p> | <p>Marlene Rabinovitch<br/><i>Professor of Pediatrics, Stanford<br/>University School of Medicine</i><br/>Christopher Rhodes<br/><i>Postdoctoral Scholar in<br/>Pediatrics, Stanford University<br/>School of Medicine</i><br/>Dennis A. Dougherty<br/><i>George Grant Hoag Professor of<br/>Chemistry</i></p> |
| <p>E.III - Biology<br/>128 Baxter<br/>3:10 - 3:30 PM</p>                                | <p><b>Guoning Xiao</b></p>                             | <p>Testing the Functional<br/>Capacity of Long Distance<br/>Candidate Regulatory<br/>Elements</p>                                  | <p>Barbara J. Wold<br/><i>Bren Professor of Molecular<br/>Biology</i><br/>Katherine Fisher<br/><i>Graduate Student in Biology</i></p>  |

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| I.II - Chemical Engineering<br>237 Baxter<br>1:20 - 1:40 PM      | <b><i>Yushu J. Xie</i></b>  | Profiling the Proteomic Response to the Incorporation of Synthetic Amino Acids in <i>E. coli</i> With Pulsed SILAC                 | David A. Tirrell<br><i>Ross McCollum-William H. Corcoran Professor and Professor of Chemistry and Chemical Engineering</i><br>John D. Bagert<br><i>Graduate Student in Bioengineering</i> |
| A.II - Biology<br>19 Baxter<br>2:00 - 2:20 PM                    | <b><i>Melissa Xu</i></b>  | Towards the Production of a BMP Morphogen Gradient   | Michael B. Elowitz<br><i>Professor of Biology and Bioengineering; Investigator, Howard Hughes Medical Institute</i><br>Nagarajan Nandagopal<br><i>Graduate Student in Bioengineering</i>  |
| M.III - Electrical Engineering<br>102 Spalding<br>2:50 - 3:10 PM | <b><i>Lita F. Yang</i></b><br><i>Robert K. and Alice L. Roney SURF Fellow</i> | Terahertz Imaging With a 4x4 Pixel Focal Plane Imager in 0.13 $\mu$ m SiGe BiCMOS Technology                                       | Ali A. Hajimiri<br><i>Thomas G. Myers Professor of Electrical Engineering</i>   |
| J.II - Bioengineering<br>301 Thomas<br>1:40 - 2:00 PM            | <b><i>Perren Yang</i></b>   | Durability of Superhydrophobic Carbon Nanotube Arrays Under Various Aqueous Conditions   | Mory Gharib<br><i>Hans W. Liepmann Professor of Aeronautics and Professor of Bioinspired Engineering</i><br>Adrianus Indrat Aria<br><i>Graduate Student in Aeronautics</i>                |
| C.I - Biology<br>125 Baxter<br>10:00 - 10:20 AM                  | <b><i>Ran Yang</i></b>  | A Flip-Out Method to Obtain <i>Drosophila</i> Transformants With a Mitochondrial Killer Construct                                  | Bruce A. Hay<br><i>Professor of Biology</i><br>Nikolai Kandul<br><i>Postdoctoral Scholar in Biology</i>   |
| U.III - Astronomy<br>101 Guggenheim<br>2:30 - 2:50 PM            | <b><i>Scott M. Yantek</i></b>   | Combining Radial Velocity Measurements and High Contrast Imaging to Characterize Long Period Planetary Systems                     | Justin R. Crepp<br><i>Postdoctoral Scholar in Astronomy</i><br>John A. Johnson<br><i>Assistant Professor of Astronomy</i>   |
| E.II - Biology<br>128 Baxter<br>1:20 - 1:40 PM                   | <b><i>Alex W. Yeh</i></b><br><i>Richter Scholar</i>                           | Deciphering How Mitochondria Activity Supports and Modulates Nervous System Function in the Nematode <i>Caenorhabditis elegans</i> | Paul W. Sternberg<br><i>Thomas Hunt Morgan Professor of Biology; Investigator, Howard Hughes Medical Institute</i><br>Amir Sapir<br><i>Postdoctoral Scholar in Biology</i>                |

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| F.I - Chemistry<br>210 Baxter<br>10:00 - 10:20 AM                      | <b>Jessica S. Yeung</b>   | The Development of Luminescent Probes for DNA Base Mismatches   | Jacqueline K. Barton<br><i>Arthur and Marian Hanisch Memorial Professor and Professor of Chemistry</i><br>Anna J. McConnell<br><i>Postdoctoral Scholar in Chemistry</i>                      |
| X.II - Physics<br>113 Spalding<br>1:20 - 1:40 PM                       | <b>Joshua Yoon</b><br><i>The Aerospace Corporation</i><br><i>SURF Fellow</i>  | Analysis of the Electrical Characteristics of Micro-Superconducting QUantum Interference Devices ( $\mu$ -SQUIDS) Fabricated Under a Trilayer Nb-AIO <sub>x</sub> -Nb Process | Kathryn Moler<br><i>Professor of Applied Physics and Physics, Stanford University</i><br>Keith C. Schwab<br><i>Professor of Applied Physics</i>  |
| D.II - Biology<br>127 Baxter<br>2:00 - 2:20 PM                         | <b>Yanwen You</b>   | Statistical Genomics of MRSA Infection and Disease Progression  | Michael C. Wendl<br><i>Research Assistant Professor of Genetics, Washington University in St. Louis</i><br>Katalin Fejes Toth<br><i>Thomas Hunt Morgan Senior Research Fellow in Biology</i> |
| D.II - Biology<br>127 Baxter<br>1:00 - 1:20 PM                         | <b>Caroline Y. Yu</b>   | Intracellular Trafficking of Nicotinic Receptors ( $\alpha$ 4 $\beta$ 2)  | Henry A. Lester<br><i>Bren Professor of Biology</i><br>Chris I. Richards<br><i>Postdoctoral Scholar in Biology</i>   |
| M.II - Electrical Engineering<br>102 Spalding<br>1:40 - 2:00 PM        | <b>Chia-Chen Yu</b><br><i>William H. and Helen Lang</i><br><i>SURF Fellow</i> | Low Frequency Impedance Measurement: Primary Coil of the Retinal Prosthesis System  | Yu-Chong Tai<br><i>Professor of Electrical Engineering and Mechanical Engineering</i><br>Yu Zhao<br><i>Graduate Student in Electrical Engineering</i>  |
| T.III - Humanities and Social Sciences<br>206 Thomas<br>2:50 - 3:10 PM | <b>Jenny Z. Yung</b><br><i>David C. Elliot SURF Fellow</i>                    | The Effect of Strategic Exits on the Incumbency Effect  | Jonathan N. Katz<br><i>Professor of Social Sciences and Statistics</i>   |
| T.II - Humanities and Social Sciences<br>206 Thomas<br>1:20 - 1:40 PM  | <b>Eric B. Zhang</b><br><i>Richter Scholar</i>                                | Experimental Verification of the Theory of Dynamic Market Completeness  | Peter L. Bossaerts<br><i>William D. Hacker Professor of Economics and Management and Professor of Finance</i>  |
| U.I - Astronomy<br>101 Guggenheim<br>10:20 - 10:40 AM                  | <b>Melissa L. Zhang</b>   | Clustering Astronomical Event Notification via Natural Language   | S. George Djorgovski<br><i>Professor of Astronomy</i><br>Matthew Graham<br><i>Computational Scientist in CACR</i>  |

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| J.III - Bioengineering<br>301 Thomas<br>3:10 - 3:30 PM                   | <b><i>Vivian Zhang</i></b><br><i>Soli Deo Gloria SURF Fellow</i>                  | The Use of Carbon Nanotube<br>Arrays to Direct Stem Cell<br>Differentiation                      | Mory Gharib<br><i>Hans W. Liepmann Professor<br/>of Aeronautics and Professor of<br/>Bioinspired Engineering</i><br>Derek G. Rinderknecht<br><i>Postdoctoral Scholar in<br/>Bioengineering</i> |
| T.II - Humanities and<br>Social Sciences<br>206 Thomas<br>1:40 - 2:00 PM | <b><i>Yuanjun Zhang</i></b><br><i>Caltech-NUS Exchange</i>                        | Route Decisions in a Simple<br>Network: A Pilot Study  | Soo Hong Chew<br><i>Professor of Economics,<br/>National University of<br/>Singapore</i>   |
| X.I - Physics<br>113 Spalding<br>11:00 - 11:20 AM                        | <b><i>Shiyu Zhao</i></b><br><i>Richter Scholar</i>                                | Crowdsourcing for Event<br>Classification in NOvA<br>Particle Physics Experiment                 | Ryan B. Patterson<br><i>Assistant Professor of Physics</i>   |
| E.I - Biology<br>128 Baxter<br>10:20 - 10:40 AM                          | <b><i>Yu Zhou</i></b><br><i>Carolyn Ash SURF Fellow</i>                           | Using X-ray Crystallography<br>to Unlock the Structure of<br>the 2G12 Wild Type Dimer            | Pamela J. Bjorkman<br><i>Max Delbrück Professor of<br/>Biology; Investigator, Howard<br/>Hughes Medical Institute</i><br>Yunji Wu<br><i>Graduate Student in Biology</i>                        |
| O.II - Materials Science<br>214 Steele<br>1:40 - 2:00 PM                 | <b><i>Jennifer H. Zhu</i></b><br><i>The Aerospace Corporation<br/>SURF Fellow</i> | A Route for Enhanced<br>Strength Materials Through<br>Three-Dimensional<br>Nanostructured Design | Julia R. Greer<br><i>Assistant Professor of Materials<br/>Science</i><br>Andrew T. Jennings<br><i>Graduate Student in Materials<br/>Science</i>  |
| C.I - Biology<br>125 Baxter<br>10:20 - 10:40 AM                          | <b><i>Mario V. Zúbia</i></b><br><i>Rose Hills Foundation<br/>SURF Fellow</i>      | Characterizing Maternal<br><i>Drosophila</i> Promoters for Use<br>in <i>Aedes</i>                | Bruce A. Hay<br><i>Professor of Biology</i><br>Omar S. Akbari<br><i>Postdoctoral Scholar in Biology</i>  |