



Stanford Bio-X

**STANFORD
BIO-X**

TRAVEL AWARD PROGRAM

2006-2014



Laura Sasportas
(Bioengineering)

Michael Yip
(Bioengineering)

Nate Cira
(Bioengineering)

Matthew Sacchet
(Neurosciences)



Travel Award Program

The **Bio-X Travel Award Program** was created in order to help promote the development of public speaking skills amongst our students, as well as to provide them with the invaluable opportunity to travel and network with like-minded peers and to learn about new ideas that could potentially and positively affect their research.

Beginning in 2006, Bio-X has been providing \$500 in travel subsidies to graduate students working in Bio-X affiliated labs, enabling them to give oral presentations of their work at an upcoming conference.

To date, we have provided over 330 travel subsidies to Stanford graduate students. These students come from many disciplines around campus; they represent 38 different departments and the research of the labs of 120 Stanford faculty members. The students have traveled to 62 foreign cities in 29 different countries or commonwealths, and 32 different states in the United States.

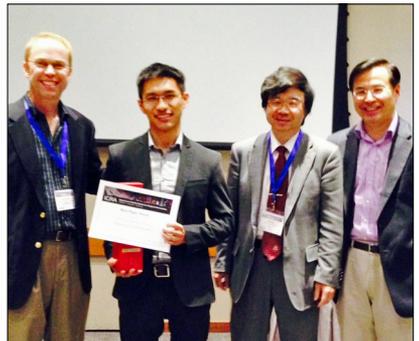
ADDITIONAL AWARDS CONFERRED ON OUR TRAVEL AWARDEES DUE TO THEIR PRESENTATIONS

In addition to the Bio-X travel award, a number of our student awardees have received additional accolades for their research and their presentations. The full list of awards, publications, and other accomplishments related to their oral presentations may be found online at <https://biox.stanford.edu/research/travel-awards>.

Some highlights of our student travel awardees' work:



Michael Yip traveled to Hong Kong, China for the 2014 IEEE International Conference on Robotics and Automation where his poster, “Model-less control of a flexible robotic catheter,” merited the *Best Paper award*.



Michael Yip traveled to Hong Kong for the 2014 IEEE International Conference on Robotics and Automation



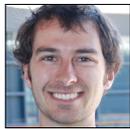
Laura Sasportas traveled to St. Louis, Missouri for the 2014 Society for Nuclear Medicine and Molecular Imaging (SNMMI) Annual Meeting. Laura received two awards for her presentation, entitled “Single cell metabolomics in circulating tumor cells”: *Young Investigator Award (1st place)* from the Nuclear Oncology Council and the *Young Professional Committee Abstract Award (2nd place in the category Basic Science)*.



Laura Sasportas traveled to St. Louis, Missouri at the 2014 Society for Nuclear Medicine and Molecular Imaging (SNMMI) Annual Meeting

During the conference, I had the opportunity to learn a great deal from the numerous scientific, educational, and poster sessions. I also had the opportunity to visit multiple vendors and learn more about the state of commercial innovation, future job opportunities, and prospects for industry collaboration. In sum, the conference was a great learning experience on many levels.

- Cesare Jenkins on his 2014 travel experience



Nate Cira traveled to Pittsburgh, Pennsylvania for the APS DFD (Division of Fluid Dynamics) 2013. Aside from giving his talk, “Dancing droplets,” he also participated in the video competition. His video won a *Best Video Award* and was featured in the March 2014 general American Physical Society meeting and in the online gallery of fluids videos.



Nate Cira traveled to Pittsburgh, Pennsylvania for the APS DFD (Division of Fluid Dynamics) 2013



Travel Award Program



Janice Lai traveled to Venice, Italy for the 8th Combined Meeting of Orthopaedic Research Societies. She received the *Young Investigator Award (Best Oral Presentation in Biology)* for her talk, “Stem cells catalyze cartilage formation by neonatal articular chondrocytes.”



Janice Lai traveled to Venice, Italy for the 8th Combined Meeting of Orthopaedic Research Societies



Mallory Hammock traveled to San Francisco, California for the 2013 AiCHE National Fall Meeting. She was preselected as one of ten graduate students from a pool of a record number of applicants *to participate in a special symposium* aimed at recognizing students whose research achievements in bionanotechnology demonstrate a high level of excellence.



Mallory Hammock traveled to San Francisco for the 2013 AiCHE National Fall Meeting



Stephen Fried traveled to San Francisco, California for the 57th Annual Meeting of the Biophysical Society. Aside from giving his talk, “Vibrational stark effects in the active site of ketosteroid isomerase point to large electric fields driving chemical catalysis,” *he co-chaired his session on enzymes.*



Andrew Klein traveled to Waterville Valley, New Hampshire for the 2013 Gordon Research Seminar in Plant Metabolic Engineering. While there, his interactions with peers and principal investigators led to his being *elected to serve as the vice-chair of the next Gordon Research Seminar.*



Patrick Ye traveled to Shanghai, China for the 13th International Symposium for Therapeutic Ultrasound. He received the *Nadine Barrie Smith Student Award for best student presentation* at the conference for his work, "Frequency dependence of ultrasound neuromodulation."



Patrick Ye with his advisor, Professor Kim Butts Pauly, in Shanghai, China, for the 13th International Symposium for Therapeutic Ultrasound



Gabriel Billings traveled to San Francisco, California for the 2012 American Society of Microbiology General Meeting. His submission, "*De novo* synthesis of the cell wall in *E. coli*: Reversion of L-forms," was *selected as a Young Investigator talk.*



Katherine Steele traveled to Grand Rapids, Michigan for the 2012 Gait & Clinical Movement Analysis Society Conference. She received the *Dr. Kevin P. Granata Student Award for most outstanding oral presentation* for her talk, "How do muscle contributions to support and propulsion change during crouch gait?"



Tiffany Chen traveled to Baltimore, Maryland for the XXVI Congress of the International Society for Advancement of Cytometry. She received the *President's Award for Excellence*, an honor bestowed only once annually, for her talk, "Automating signaling and cell cycle analysis in drug discovery: Determining the effect of chemotherapeutics on leukemic cells."



Yael Garten traveled to the Big Island of Hawaii for the 2010 Pacific Symposium on Biocomputing. The manuscript from her talk, "Improving the prediction of pharmacogenes using text-derived gene-drug relationships," was published in the conference proceedings and *indexed by MEDLINE*. She was asked to *co-chair a workshop* the following year, which she did at the 2011 Pacific Symposium on Biocomputing in Hawaii.



Travel Award Program



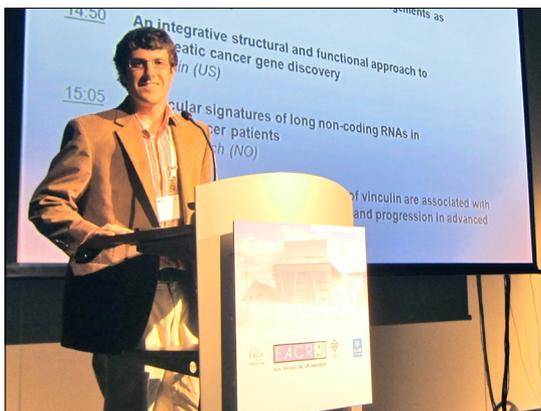
Ben Almquist in Boston, Massachusetts for the 2010 Materials Research Society Fall Meeting



Ben Almquist traveled to Boston, Massachusetts for the 2010 Materials Research Society Fall Meeting. He received a *Materials Research Society Graduate Student Gold Award* for his talk, “Lateral fusion of lipid membranes to nanoscale functionalized posts.”



Hunter Shain traveled to Oslo, Norway for the 21st Meeting of the European Association of Cancer Research in 2010. He was the EACR-21 *Presidential Session Award Winner* for his talk, “An integrative structural and functional approach to pancreatic cancer gene discovery.”



Hunter Shain in Oslo, Norway for the 21st Meeting of the European Association of Cancer Research

It was fascinating to again participate in [the] same conversations I did many years ago, but [this time] see them get resolved in a completely different direction... Given that my dissertation work draws on much of [the] cited work [of others], I ended up in some heated theoretical conversations... Many of the insights from these conversations have found their way to my lab bench and are still affecting how I might implement some of my future studies during my time here at Stanford. Thus, thanks to the Bio-X Travel Subsidy, I can say honestly that I was able to engage in some truly interdisciplinary discourse that, to my delight, has enriched research in many disciplines including my own.

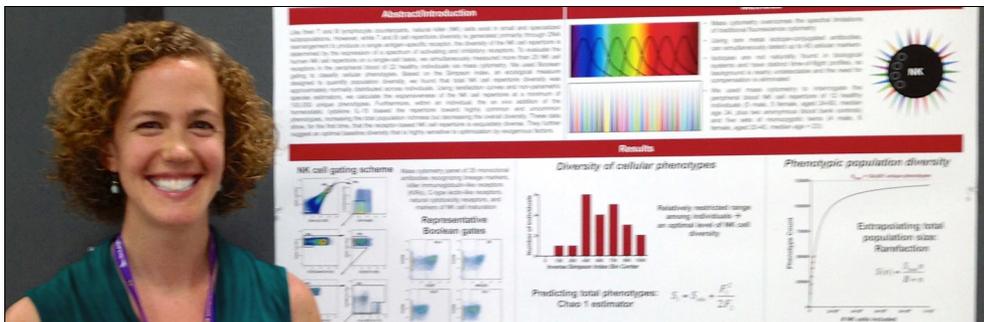
- Jana Schach Borg on her 2011 travel experience



Adam de la Zerda received the *Young Investigator Award* at the 2008 World Molecular Imaging Congress for his work, “Photoacoustic molecular imaging using single walled carbon nanotubes in living mice.” The following year, Adam received the *Best Poster Presentation Award* when he gave a talk at the SPIE Photonics West 2009 conference.



Sangbae Kim presented his talk, “Whole body adhesion: Hierarchical, directional and distributed control of adhesive forces for a climbing robot,” at the 2007 IEEE International Conference on Robotics and Automation. The robot, “StickyBot,” has been featured in *TIME Magazine* as one of the “Best Inventions 2006” (Nov. 13, 2006) and in *Wired Science* (Jan 3, 2007).



Dara Strauss-Albee in Honolulu, Hawaii for the 2013 American Association of Immunologists Annual Meeting

2014 At the time of publication, Bio-X anticipates at least 30 travel awards to be granted in 2014.



MADHU ADVANI
Applied Physics
Professor Surya Ganguli
“Optimal high dimensional M-estimation” (*International Conference on Statistical Physics 2014*)



RON ALFA
Developmental Biology
Professor Seung Kim
“Suppression of insulin production and secretion by the decterin hormone Limostatin” (*55th Annual Drosophila Research Conference*)



Soah Lee in San Francisco for the 2014 MRS Spring Meeting & Exhibit

The travel award from Bio-X played an important role in [giving me] a chance to get to know many people in...industry and academia. The intimate nature of the conference allowed me to have meaningful and in-depth conversations with many of the most prominent European researchers in the field, and these connections could be instrumental in my future career development.
- Alex Chortos on his 2014 travel experience



Travel Award Program



ZOE ASSAF Genetics

Professor Dmitri Petrov

“Staggered sweeps: The obstruction of adaptation in diploids by recessive, strongly deleterious alleles” (*Society for Molecular Biology and Evolution 2014*)



MATTHEW BIENIOSEK Electrical Engineering

Professor Craig Levin

“Analog electro-optical readout of SiPMs for compact, low power ToF PET/MRI” (*3rd PET/MR and SPECT/MR Conference: Paradigms for Combined Modalities in Molecular Imaging*)



GABRIEL BILLINGS Physics

Professor KC Huang

“De novo morphogenesis in L-forms via geometric control of cell growth” (*Bacterial Cell Surfaces Gordon Conference 2014*)



ERIC CHEHAB Mechanical Engineering

Professor Thomas Andriacchi

“Combining biological and mechanical measures to predict the risk for progression of osteoarthritis” (*2014 Orthopaedic Research Society Annual Meeting*)



ALEX CHORTOS Chemical Engineering

Professor Zhenan Bao

“Electronic skin for biomedical applications” (*1st Annual Winterschool on Bioelectronics*)

PRIMARY
Transcription in *E. coli* is a highly-regulated, multi-step process. We have used a single-molecule optical trapping assay that permits the real-time observation and subsequent genomic mapping of RNAP with high spatial resolution. Force spectroscopy on RNAP bound to the T7A1 promoter reveals its conformation, as well as the first two nucleotides required for transcription initiation. The positions of strong RNAP-DNA contacts between base pairs -10.2 and the loading site at +1.2. Addition of the first two nucleotides, the loading site of RNAP, leads to new binding to the DNA template. While a combination of -10.2 and +1.2 are essential for RNAP loading, they are not required for RNA synthesis and promoter escape. Approximately half of the RNAPs that bind to the promoter in the presence of separating force, -10.2, +1.2, and AAT, displayed a promoter-proximal pause. We measured the pause time of RNAPs transcribing to the +24.2 gene, consistent with elongation-station control conditions. Our findings lead us to a model of initiation that involves the contribution of the RNAP footprint on the DNA.

Real-time Observation of Transcription Initiation from the T7A1 Promoter
Cong A. Meng,^{1,4} Furqan M. Fazal,^{2,4} Steven M. Block^{2,3}
¹Department of Chemistry, ²Department of Applied Physics, ³Department of Biology, ⁴Stanford University, Stanford, CA 94305
*Authors contributed equally

ACKNOWLEDGMENTS
We thank Josh L. Lankford and Jeff Gates for useful discussions. This work was funded by the NIH F30P, was supported by a NSF Graduate Research Fellowship.

SELECTED REFERENCES
1. Hwang, S.T. and Block, S.M. (2006) Single-Molecule Biology. *EMBO Rep* 7, 101-106.
2. Hwang, S.T., Lankford, J.D., and Block, S.M. (2006) Single-Molecule Observation of Transcription Initiation. *Science* 311, 101-104.
3. Hwang, S.T., Lankford, J.D., and Block, S.M. (2006) Single-Molecule Observation of Transcription Initiation. *Science* 311, 101-104.
4. Hwang, S.T., Lankford, J.D., and Block, S.M. (2006) Single-Molecule Observation of Transcription Initiation. *Science* 311, 101-104.

transcription Initiation is a Multi-step Process
Transcription initiation is a multi-step process. We have used a single-molecule optical trapping assay that permits the real-time observation and subsequent genomic mapping of RNAP with high spatial resolution. Force spectroscopy on RNAP bound to the T7A1 promoter reveals its conformation, as well as the first two nucleotides required for transcription initiation. The positions of strong RNAP-DNA contacts between base pairs -10.2 and the loading site at +1.2. Addition of the first two nucleotides, the loading site of RNAP, leads to new binding to the DNA template. While a combination of -10.2 and +1.2 are essential for RNAP loading, they are not required for RNA synthesis and promoter escape. Approximately half of the RNAPs that bind to the promoter in the presence of separating force, -10.2, +1.2, and AAT, displayed a promoter-proximal pause. We measured the pause time of RNAPs transcribing to the +24.2 gene, consistent with elongation-station control conditions. Our findings lead us to a model of initiation that involves the contribution of the RNAP footprint on the DNA.

Positions of Strong Contact between RNAP and DNA (Plotting in Forward Direction)
RNAP-DNA contacts between base pairs -10.2 and the loading site at +1.2. Addition of the first two nucleotides, the loading site of RNAP, leads to new binding to the DNA template. While a combination of -10.2 and +1.2 are essential for RNAP loading, they are not required for RNA synthesis and promoter escape. Approximately half of the RNAPs that bind to the promoter in the presence of separating force, -10.2, +1.2, and AAT, displayed a promoter-proximal pause. We measured the pause time of RNAPs transcribing to the +24.2 gene, consistent with elongation-station control conditions. Our findings lead us to a model of initiation that involves the contribution of the RNAP footprint on the DNA.

Real-time Study of Initiation
RNAP-DNA contacts between base pairs -10.2 and the loading site at +1.2. Addition of the first two nucleotides, the loading site of RNAP, leads to new binding to the DNA template. While a combination of -10.2 and +1.2 are essential for RNAP loading, they are not required for RNA synthesis and promoter escape. Approximately half of the RNAPs that bind to the promoter in the presence of separating force, -10.2, +1.2, and AAT, displayed a promoter-proximal pause. We measured the pause time of RNAPs transcribing to the +24.2 gene, consistent with elongation-station control conditions. Our findings lead us to a model of initiation that involves the contribution of the RNAP footprint on the DNA.

Single-molecule "Dumbbell" Assay
RNAP-DNA contacts between base pairs -10.2 and the loading site at +1.2. Addition of the first two nucleotides, the loading site of RNAP, leads to new binding to the DNA template. While a combination of -10.2 and +1.2 are essential for RNAP loading, they are not required for RNA synthesis and promoter escape. Approximately half of the RNAPs that bind to the promoter in the presence of separating force, -10.2, +1.2, and AAT, displayed a promoter-proximal pause. We measured the pause time of RNAPs transcribing to the +24.2 gene, consistent with elongation-station control conditions. Our findings lead us to a model of initiation that involves the contribution of the RNAP footprint on the DNA.

Positions of Strong Contact between RNAP and DNA (Plotting in Reverse Direction)
RNAP-DNA contacts between base pairs -10.2 and the loading site at +1.2. Addition of the first two nucleotides, the loading site of RNAP, leads to new binding to the DNA template. While a combination of -10.2 and +1.2 are essential for RNAP loading, they are not required for RNA synthesis and promoter escape. Approximately half of the RNAPs that bind to the promoter in the presence of separating force, -10.2, +1.2, and AAT, displayed a promoter-proximal pause. We measured the pause time of RNAPs transcribing to the +24.2 gene, consistent with elongation-station control conditions. Our findings lead us to a model of initiation that involves the contribution of the RNAP footprint on the DNA.

Representative Real-time Observations of Transcription Initiation
RNAP-DNA contacts between base pairs -10.2 and the loading site at +1.2. Addition of the first two nucleotides, the loading site of RNAP, leads to new binding to the DNA template. While a combination of -10.2 and +1.2 are essential for RNAP loading, they are not required for RNA synthesis and promoter escape. Approximately half of the RNAPs that bind to the promoter in the presence of separating force, -10.2, +1.2, and AAT, displayed a promoter-proximal pause. We measured the pause time of RNAPs transcribing to the +24.2 gene, consistent with elongation-station control conditions. Our findings lead us to a model of initiation that involves the contribution of the RNAP footprint on the DNA.



KYLE EAGEN

Structural Biology
Professor Roger Kornberg

“Architecture of interphase chromosomes” (2014 Cold Spring Harbor Laboratory Meeting on Nuclear Organization & Function)



NANDITA GARUD
Genetics

Professor Dmitri Petrov

“Robust detection of hard and soft selective sweeps using haplotype statistics” (2014 Society for Molecular Biology and Evolution (SMBE))



CESARE JENKINS
Mechanical Engineering

Professor Lei Xing

“Visualizing and quantifying radiation therapy in real-time using a novel beam imaging technique” (2014 AAPM Annual Meeting)



SOAH LEE
Materials Science & Engineering

Professor Fan Yang

“Matrix stiffness regulates PSC differentiation towards smooth muscle cell lineage” (2014 MRS Spring Meeting & Exhibit)



Brian Lee in Seoul, Korea for the 2013 IEEE Molecular Imaging Conference (MIC)



ALICIA MARTIN
Genetics

Professor Carlos Bustamante

“Imputation-based assessment of next generation rare exome variant arrays” (Pacific Symposium on Biocomputing 2014)



MATTHEW SACCHET
Neurosciences

Professors Ian Gotlib and Anthony Wagner

“Characterizing white matter connectivity in major depressive disorder: Automated fiber quantification and maximum density paths” (2014 IEEE International Symposium on Biomedical Imaging)



LAURA SASPORTAS
Bioengineering

Professor Sanjiv Sam Gambhir

“Single cell metabolomics in circulating tumor cells” (2014 Society for Nuclear Medicine and Molecular Imaging (SNMMI) Annual Meeting)



Travel Award Program



KATHERINE SHARP

Pathology

Professor Jeff Axelrod

“Prickle/Spiny-legs isoforms control the polarity of the apical microtubule network in PCP” (*Annual Drosophila Research Conference 2014*)



Katherine Sharp in San Diego, California for the Annual Drosophila Research Conference 2014



JOO YONG SIM

Mechanical Engineering

Professor Beth Pruitt

“Balancing forces in cell pairs” (*2014 World Congress of Biomechanics*)



JUSTIN SOLOMON

Computer Science

Professor Leonidas Guibas

“Wasserstein propagation for semi-supervised learning” (*2014 International Conference on Machine Learning*)



HAO SU

Computer Science

Professor Leonidas Guibas

“Estimating image depth from shape collections” (*SIGGRAPH 2014*)



SANDEEP VENKATARAM

Biology

Professor Dmitri Petrov

“Characterizing independent adaptive mutations in yeast experimental evolution using DNA barcodes” (*Evolution 2014*)

We received invaluable feedback on our work from clinical and entomological experts who have decades of experience in field research. This [conference] led to possible avenues for international collaboration on our project. Meeting scientists and clinicians who want to start using our technology for their research as soon as possible was thrilling since it tells us we have identified a good potential solution to a very pressing need. The ASTMH experience has given us extra impetus to make faster progress in our work, given the interest in the project and its potential to save lives and affect national policies.
- Haripriya Mukundarajan on her 2013 travel experience



BENJAMIN WILSON

Biology

Professor Dmitri Petrov

“Soft selective sweeps in complex demographic scenarios” (*Society for Molecular Biology and Evolution (SMBE) 2014*)

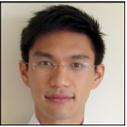


YUAN YAO

Bioengineering

Professor Norbert Pelc

“To explore the more realistic energy responses of the in-depth photon counting detectors” (*56th AAPM Annual Meeting & Exhibition*)



MICHAEL YIP

Bioengineering

Professor David Camarillo

“Model-less control of a flexible robotic catheter” (*2014 IEEE International Conference on Robotics and Automation*)



BO ZHANG

Chemistry

Professor Hongjie Dai

“A plasmonic chip for biomarker discovery and diagnosis of Type-1 diabetes” (*2014 Bioanalytical Sensors Gordon Research Seminar*)

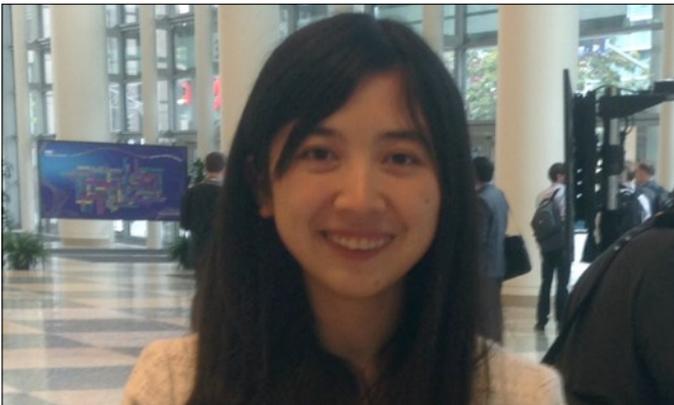


DANQING ZHU

Bioengineering

Professor Fan Yang

“Mimicking tissue zonal organization by engineering hydrogels with biochemical and mechanical gradients” (*2014 Materials Research Society - Symposium Y: Biomaterials for Biomolecule Delivery and Understanding Cell-Niche Interactions*)



All too often as graduate students we become pigeon-holed in a particular niche and the breadth and quality of the work presented at [the conference I attended served] as a perfect reminder of the excitement of science, and as an inspiration to contribute to our scientific knowledge base. All in all, this was a great opportunity and the funding from Bio-X made it possible.

- Jay Fitzgerald on his 2012 travel experience

Danqing Zhu in San Francisco, California for the 2014 Materials Research Society - Symposium Y: Biomaterials for Biomolecule Delivery and Understanding Cell-Niche Interactions



Travel Award Program

2013 In 2013, 44 students received Bio-X Travel Awards.



ERIC CHEHAB
Mechanical Engineering
Professor Thomas Andriacchi

“Knee flexion moment during walking influences medial compartment cartilage thickness in patients with knee osteoarthritis” (*2013 Meeting of the American Society of Biomechanics*)



NATE CIRA
Bioengineering
Professor Steve Quake

“Dancing droplets” (*APS DFD (Division of Fluid Dynamics) 2013*)



JANG HWAN CHOI
Mechanical Engineering
Professor Rebecca Fahrig

“Image quality assurance study of a cone-beam C-arm CT with automatic exposure control for body applications” (*55th Annual Meeting of the American Association of Physicists in Medicine*)



SHANNON EDD
Mechanical Engineering
Professor Thomas Andriacchi

“Meniscectomized knees regain normal walking flexion range of motion with time past surgery” (*2013 American Society of Mechanical Engineering Summer Bioengineering Conference*)



FURQAN FAZAL
Applied Physics
Professor Steven Block

“Real time observation of initiation from the T7A1 promoter” (*2013 Science Research Conference: Mechanisms and Regulation of Prokaryotic Transcription*)



LIMOR FREIFELD
Electrical Engineering
Professors Mark Horowitz and Thomas Clandinin

“Lateral interactions tune the early stages of visual processing in *Drosophila*” (*Cosyne 2013*)



STEPHEN FRIED
Chemistry
Professor Steven Boxer

“Vibrational stark effects in the active site of ketosteroid isomerase point to large electric fields driving chemical catalysis” (*57th Annual Meeting of the Biophysical Society*)



Pratap Rao in Warsaw, Poland for the 34th International Symposium on Combustion



GIANCARLO GARCIA

Mechanical Engineering
Professor Juan G. Santiago

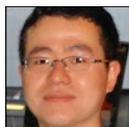
“Electrokinetic instability of isotachopheresis shocks” (*American Physical Society, Division of Fluid Dynamics 2013*)



NANDITA GARUD

Genetics
Professor Dmitri Petrov

“Recent and strong adaptation in *Drosophila melanogaster* is driven primarily by soft selective sweeps” (*2013 Drosophila Research Conference*)



CHEN GU

Computational and Mathematical Engineering
Professor Leonidas Guibas

“Building Markov state models with solvent dynamics” (*11th Asia Pacific Bioinformatics Conference*)



JONATHAN KARR

Biophysics
Professor Markus Covert

“Biological design and genome optimization using whole-cell models”
(*2013 Keystone Symposium - Precision Genome Engineering and Synthetic Biology: Designing Genomes and Pathways*)



GEORGIOS KATSIKIS

Mechanical Engineering
Professor Manu Prakash

“Synchronous droplet microfluidics: One ‘clock’ to rule them all” (*66th Annual Meeting of the APS Division of Fluid Dynamics*)



JONGMIN KIM

Chemical & Systems Biology
Professor Margaret Fuller
“Gene expression profiling in an adult stem cell lineage identified a putative transcriptional repressor critical for differentiation” (*Cold Spring Harbor Meeting on Stem Cell Biology 2013*)



ANDREW KLEIN

Chemical Engineering
Professor Elizabeth Sattley
“Discovery of antibiotic biosynthesis pathways in dietary plants” (*2013 Gordon Research Seminar in Plant Metabolic Engineering*)



SOFIA KYRIAZOPOULOU-PANAGIOTOPOULOU

Computer Science
Professor Serafim Batzoglou

“Integrating gene expression and sequence data with existing biological knowledge to model context-specific gene regulation” (*2013 RECOMB/ISCB conference on Regulatory and Systems Genomics*)

I had stimulating discussions with many students and several professors about their research and mine... Over the course of those discussions and while I was preparing for my talk, I realized several things about my data that I had not previously appreciated, which will significantly improve the manuscript we [were in the process of] preparing.
- Jake Hughey on his 2012 travel experience



Travel Award Program



Cesare Jenkins in Austin, Texas for the 2014 AAPM Annual Meeting



MALLORY HAMMOCK

Chemical Engineering

Professor Zhenan Bao

“Nanofunctionalized organic field-effect transistors for selective, *in situ* biodetection” (2013 AiCHE National Fall Meeting)



ANGELA HARRIS

Civil and Environmental Engineering

Professor Alexandria Boehm

“Validation and use of microbial source tracking methods for detecting fecal contamination in Dhaka, Bangladesh” (17th International Symposium on Health-Related Water Microbiology)



FIDEL HERNANDEZ III

Mechanical Engineering

Professor David Camarillo

“Comparing *in vivo* head impact kinematics from American football with laboratory drop and linear impactor head impact kinematics”

(2013 American Society of Mechanical Engineering Summer Bioengineering Conference)



CAROLINE JORDAN

Radiology and Bioengineering

Professors Brian Hargreaves and Garry Gold

“Cubequant T1rho, QDESS2, and cones sodium measurements are sufficiently reproducible *in vivo* cartilage studies” (International Society for Magnetic Resonance in Medicine 2013)



KONRAD KARCZEWSKI

Genetics

Professor Michael Snyder

“STORMSeq: An open, community-based pipeline for processing personal genomics data in the cloud” (2013 Pacific Symposium on Biocomputing)



JANICE LAI

Mechanical Engineering

Professor Fan Yang

“Stem cells catalyze cartilage formation by neonatal articular chondrocytes” (*8th Combined Meeting of Orthopaedic Research Societies*)



THOMAS LAMPO

Chemical Engineering

Professor Andrew Spakowitz

“Physical modeling of chromosome segregation in *E. coli* reveals impact of force and DNA relaxation” (*2013 American Institute of Chemical Engineers (AIChE) Annual Meeting*)



BRIAN LEE

Radiology

Professor Craig Levin

“Studies of electromagnetic interference of PET detector insert for simultaneous PET/MRI” (*2013 IEEE Molecular Imaging Conference (MIC)*)



SOAH LEE

Materials Science & Engineering

Professor Fan Yang

“The effects of PEG hydrogel crosslinking density and network homogeneity on protein diffusion” (*2013 Biomedical Engineering Society Annual Meeting*)

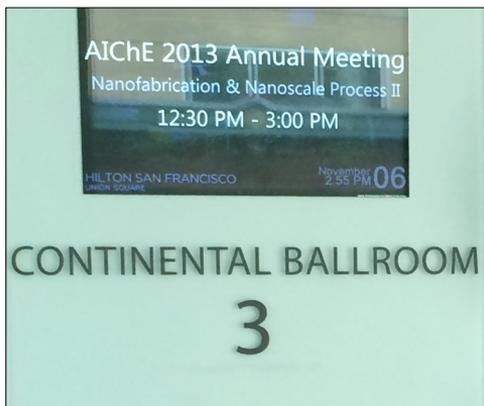


DEBORA LIN

Chemical Engineering

Professor Zhenan Bao

“Towards a biocompatible conductive nanotube film: An in-depth investigation into cellular biocompatibility” (*AiChE 2013 Annual Meeting*)



Debora Lin in San Francisco, CA for the AiChE 2013 Annual Meeting



Travel Award Program



MIA MATTIOLI
Civil & Environmental Engineering
Professor Alexandria Boehm

“Enteric pathogens in community source water, household stored water, and on hands in Tanzania”
(17th International Symposium on Health-Related Water Microbiology)



ALEXANDER MIHLIN
Electrical Engineering
Professor Craig Levin

“An MLEM method for simultaneous activity and attenuation reconstruction for PET using true and scattered coincidences” (IEEE Nuclear Science Symposium and Medical Imaging Conference)



HARIPRIYA MUKUNDARAJAN
Mechanical Engineering
Professor Manu Prakash

“Mosquitoes meet microfluidics - High-throughput microfluidic tools to study field ecology of insect-borne infectious diseases” (American Society for Tropical Medicine and Hygiene - 62nd Annual Meeting)



JAMES NISHIMUTA
Mechanical Engineering
Professor Marc E. Levenston

“Extracellular matrix turnover in cartilage and meniscus tissues in response to adipokines”
(2013 Annual Meeting of the Orthopaedic Research Society)



YUMA OHKURA
Mechanical Engineering
Professor Xiaolin Zheng

“Reducing minimum flash ignition energy of Al microparticles by addition of WO₃ nanoparticles”
(The 8th US National Combustion Meeting)



JAKUB RAJNIAK
Chemical Engineering
Professor Elizabeth Sattely

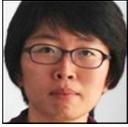
“Transcriptomics- and metabolomics-driven discovery of a novel indolic secondary metabolite pathway in *Arabidopsis*” (2013 Gordon Research Seminar in Plant Metabolic Engineering)



ANITA ROGACS
Mechanical Engineering
Professor Juan G. Santiago

“A high fidelity, validated model of temperature effects for electrophoresis”
(29th International Symposium on MicroScale Bioseparations)

After my presentation, I received a lot of critical and, at the same time, very supportive feedback. This feedback alone made the opportunity to attend the Bonhoeffer Retreat invaluable, but I am also very grateful to have been able to take in and contribute to a scientific dialogue integrating ideas drawn from so many fronts of the cutting edge of contemporary systems neuroscience.
- Jonathan Leong on his 2012 travel experience



MIHYE SHIN

**Mechanical Engineering
Professor Rebecca Fahrig**

“Instrument design to measure the optical properties of reflectance and transmittance”
(55th Annual Meeting of the American Association of Physicists in Medicine)



MICHAEL SIDDIQUI

**Chemical Engineering
Professor Christina Smolke**

“Production of plant alkaloids in *Saccharomyces cerevisiae*” *(American Institute of Chemical Engineers Annual Meeting 2013)*



JUSTIN SOLOMON

**Computer Science
Professor Leonidas Guibas**

“Dirichlet energy for analysis and synthesis of soft maps” *(2013 Symposium on Geometry Processing)*



DARA STRAUSS-ALBEE

**Infectious Diseases
Professor Catherine Blish**

“Quantifying the unanticipated diversity of the human NK cell repertoire”
(2013 American Association of Immunologists Annual Meeting)



Tianyi Wang in Venice, Italy for the 8th Combined Meeting of Orthopaedic Research Societies



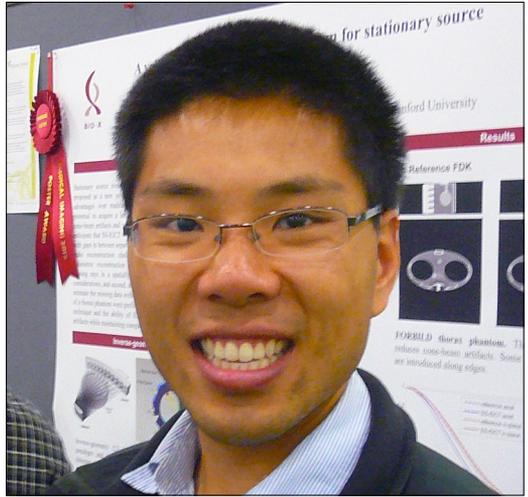
Travel Award Program



JIONGYI TAN
Biophysics
Professor W. James Nelson
“Force regulation between the E-cadherin-catenin complex and actin filaments” (2013 American Society for Cell Biology Annual Meeting)



CAROLINA TROPINI
Bioengineering
Professor KC Huang
“From cell wall structure to morphogenesis” (2013 American Society for Microbiology General Meeting)



Adam Wang in San Diego, CA at the SPIE Medical Imaging 2012



TIANYI WANG
Bioengineering
Professor Fan Yang
“Modulating chondrogenesis of adipose-derived stromal cells in combinatorial extracellular matrix-containing hydrogels with independently tunable niche properties” (Combined Orthopedic Research Society Conference 2013)



JAEWON YANG
Electrical Engineering
Professor Edward Graves
“The potential of positron emission tomography (PET) for intra-treatment dynamic tumor tracking during radiotherapy: A phantom study” and “The impact of audiovisual (AV) biofeedback respiratory training on 4D-PET image quality” (55th Annual Meeting of the American Association of Physicists in Medicine)



Erika Geihe in San Diego, CA at the 243rd American Chemical Society National Meeting



Cynthia Wu in Joao Maia, Portugal for the XVI International Congress on Rheology



PATRICK YE

Bioengineering

Professor Kim Butts Pauly

“Frequency dependence of ultrasound neuromodulation”

(13th International Symposium for Therapeutic Ultrasound)



JASON YEATMAN

Psychology

Professor Brian Wandell

“Quantitative biological measurements of white matter development”

(2013 Annual Meeting: Organization for Human Brain Mapping)



BO ZHANG

Chemistry

Professor Hongjie Dai

“Metal enhanced fluorescence: Boosting sensitivity for high-throughput proteomic immunoassay”

(2013 International Conference on Nanoscience & Technology)



CHUN HUA ZHENG

Biomechanical Engineering

Professor Marc Levenston

“Fact vs. artifact: Avoiding erroneous estimates of glycosaminoglycan content in tissue-engineered constructs”

(2013 Orthopaedic Research Society Annual Meeting)

2006-2012

From 2006 to 2012, Bio-X gave 263 travel awards to Stanford graduate students. These students were from many disciplines across campus; they represent 36 different departments and 92 faculty members.

For the complete list of Bio-X travel awardees from 2006 to 2012, please visit:

<https://biox.stanford.edu/research/travel-awards>



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