

Doctor of Philosophy

DIVISION OF BIOLOGY

- Meghan Sara Adams (*Biology*) B.S., University of California, Los Angeles 2000.
Thesis: Uncovering Molecular Properties of Neural Crest Cells.
- Megan Jo Anderson (*Biochemistry and Molecular Biophysics*) B.A., B.S., University of California, San Diego 2003.
Thesis: Microfluidics-Based Strategies for Protein Crystallography.
- Jessica Rose Escobedo (*Integrative Neurobiology*) B.A., Kenyon College 2000.
Thesis: Investigating Moral Events: Characterization and Structure of Autobiographical Moral Memories.
- Sean Gordon (*Biochemistry and Molecular Biophysics*) B.S., University of Kansas 2001; M.Sc., Max Planck Research School for Molecular Biology 2003.
Thesis: Hormone and Gene Feedback during Development and Regeneration in *Arabidopsis thaliana*.
- Jane Igor Khudyakov (*Biology*) B.S., University of North Carolina at Chapel Hill 2003.
Thesis: Role of Bmi-1 in Epigenetic Regulation during Early Neural Crest Development.
- Joshua S. Klein (*Biochemistry and Molecular Biophysics*) A.A., College of Maine 2000; B.A., University of California, Berkeley 2002.
Thesis: Investigations in the Design and Characterization of HIV-1 Neutralizing Molecules.
- Louisa M. Liberman (*Biology*) B.A., Mount Holyoke College 2002.
Thesis: Regulation of Neurogenic Ectoderm Specification in *Drosophila melanogaster*.
- Andrew Medina-Marino (*Biology*) B.A., Swarthmore College 2000; M.S., California Institute of Technology 2003.
Thesis: Construction and Initial Characterization of the Densin Knockout Mouse.
- Julien Muffat (*Cellular and Molecular Neurobiology*) D.E.A., Ecole Normale Supérieure 2001; Licence 1998; Maîtrise 1999.
Thesis: Role of Apolipoprotein D and Its Homologs, in Normal and Pathological Aging, in *Drosophila melanogaster*.
- Elizabeth Ann Ottesen (*Biology*) B.A., Grinnell College 2002.
Thesis: The Biology and Community Structure of CO₂-Reducing Acetogens in the Termite Hindgut.
- Alexa Mari Price-Whelan (*Biology*) B.A., Barnard College, Columbia University 2002.
Thesis: Physiology and Mechanisms of Pyocyanin Reduction in *Pseudomonas aeruginosa*.

When more than one field of study is listed, the first is the major, and the second and others are minors.

Doctor of Philosophy continued

- Adrian Edward Rice (*Biochemistry and Molecular Biophysics*) B.S., University of Washington 2001.
Thesis: Biophysical and Cell Biological Studies Characterizing the Vertebrate Iron Exporter Ferroportin.
- Ted Olin Ririe (*Biology*) B.S., Brigham Young University 1999.
Thesis: A Multipartite Approach to Mapping the Gene Network Directing *Caenorhabditis elegans* Vulval Organogenesis.
- Adeline Seah (*Biology*) B.S., University of California, Berkeley 2001.
Thesis: EGF, WNT & HOX Interactions during Patterning of *Caenorhabditis elegans* Equivalence Groups.
- Celia Eenjing Shiau (*Biology*) B.S., University of California, Davis 2003.
Thesis: Formation of Cranial Sensory Ganglia: Role of Neural Crest-Placode Interactions, Slit-Robo, and Cadherins.
- Amber L. Southwell (*Cellular and Molecular Neurobiology*) B.S. (*Biochemistry*), The University of Texas at Austin 1999; B.S. (*Molecular Biology*), 2001.
Thesis: Intrabodies as Therapeutics for Huntington's Disease.
- Devin Brent Tesar (*Biology*) B.A., B.S., University of Missouri-Columbia 2001.
Thesis: Investigations of the Mechanisms of Receptor-Mediated Immunoglobulin Transport in Mammals and Birds.

DIVISION OF CHEMISTRY AND CHEMICAL ENGINEERING

- Akinleye C. Alabi (*Chemistry*) B.S., New York University 2004; B.E., Stevens Institute of Technology 2004.
Thesis: I. Synthesis and Proton Conductivity Studies of Mesoporous Organosilicates and Bitriazole-Polymer Composites. II. Targeted Nanoparticles for siRNA Delivery.
- Benjamin D. Allen (*Chemistry*) B.A., Pomona College 2003.
Thesis: Development and Validation of Optimization Methods for the Design of Protein Sequences and Combinatorial Libraries.
- Raymond Humphrey Archer (*Chemical Engineering*) B.E., B.Com., University of Canterbury 2003.
Thesis: Molecular Sieve Synthesis Using Imidazolium Structure Directing Agents.
- Travis Scott Bayer (*Biochemistry and Molecular Biophysics*) B.S., The University of Texas at Austin 2003.
Thesis: Synthetic Regulation and Genetic Control of an Ecological Strategy.
- Chase Lawrence Beisel (*Chemical Engineering and Biology*) B.S., Iowa State University 2004.
Thesis: Engineering Ligand Control of RNA Interference.

Doctor of Philosophy continued

- Stephen Allen Chapman (*Chemical Engineering*) B.S., University of California, Berkeley 2001; M.S., California Institute of Technology 2004.
Thesis: Quantitative Performance and Tradeoffs in the MAP Kinase Signaling Module.
- Wei-Chen Chen (*Chemistry and Physics*) B.S., National Tsinghua University 1998.
Thesis: Isotope Effects in Chemical Processes of Atmospheric Interest.
- David Michael Chenoweth (*Chemistry*) B.S., Indiana University 1999.
Thesis: Synthesis and Structural Studies of Cyclic Py-Im Polyamides.
- Justin Delgado Cohen (*Chemistry*) S.B., Massachusetts Institute of Technology 2003.
Thesis: Programming Protein Patterns on DNA Nanostructures with Pyrrole-Imidazole Polyamides.
- Stephanie June Culler (*Chemistry*) B.S., University of California, San Diego 2003; M.S., California Institute of Technology 2005.
Thesis: Reprogramming Alternative Splicing Using *Cis*-Acting Intronic Control Elements.
- Amy Lynn Eastwood (*Chemistry*) B.S., University of Virginia 2002.
Thesis: Investigating Structure-Function Relationships in Ion Channels Using Unnatural Amino Acids.
- David C. Ebner (*Chemistry*) B.S., B.A., University of Saint Thomas 2002.
Thesis: Development and Applications of the Palladium-Catalyzed Enantioselective Oxidation of Secondary Alcohols.
- Paul Richard Elowe (*Chemistry*) B.A., M.S., University of Pennsylvania 2003.
Thesis: The Selective Oligomerization of Ethylene Using Chromium Diphosphine Catalysts and the Synthesis and Reactivity of Group 7 Carbonyl Derivatives Relevant to Synthesis Gas Conversion.
- Cristal Ivette Gama (*Biochemistry and Molecular Biophysics*) B.S., California State University, Los Angeles 2000.
Thesis: Understanding the Chemical Basis of Neuronal Development and Communication: I. The Role of Fucose $\alpha(1-2)$ Galactose Carbohydrates in Neuronal Growth. II. Structure-Function Analysis of Chondroitin Sulfate in the Brain.
- Irina A. Gorodetskaya (*Chemistry*) S.B., Massachusetts Institute of Technology 2002.
Thesis: Nonlinear Polymeric Architectures via Olefin Metathesis.
- Alon A. Gorodetsky (*Chemistry*) B.S., M.S., Cornell University 2003.
Thesis: Electrical Detection of DNA Binding Proteins.
- Ariele Patrice Hanek (*Chemistry*) B.A., Bowdoin College 2003.
Thesis: Chemical-Scale Investigations of Cys-Loop Neurotransmitter Gated Ion Channels.

Doctor of Philosophy continued

- Kristy Michelle Hawkins (*Chemical Engineering and Biology*) B.S., Texas A&M University 2002; M.S., California Institute of Technology 2005.
Thesis: Metabolic Engineering of *Saccharomyces cerevisiae* for the Production of Bensylisoquinoline Alkaloids.
- Carey Frank Hsu (*Chemistry*) A.B., Harvard College 2001.
Thesis: Completion of a Programmable DNA-Binding Small Molecule Library.
- Claire Sigrid Jacobs (*Chemistry*) B.Sc., The University of Chicago 2001.
Thesis: Structural Modifications to DNA-Binding Polyamides for Improved Biological Activity in Cell Culture.
- Jennifer Rae Keeffe (*Biochemistry and Molecular Biophysics*) B.S., Western Washington University 2001.
Thesis: Engineering Cyanovirin-N for Enhanced Viral Neutralization.
- Peter Michael Kekenos-Huskey (*Chemistry*) B.S., University of North Carolina at Asheville 2001.
Thesis: A Monte Carlo-based Torsion Construction Algorithm for Ligand Design.
- Hyungjun Kim (*Chemistry and Physics*) B.S., Korea Advanced Institute of Science and Technology 2004.
Thesis: Multiscale and Multiphysics Computational Frameworks for Nano- and Bio-Systems.
- Robert Randolph Knowles (*Chemistry*) B.S., College of William and Mary 2003.
Thesis: Asymmetric Organocatalysis in Complex Target Synthesis: Progress Towards the Total Synthesis of Diazonamide A.
- Brian S. Leigh (*Chemistry*) B.S., Portland State University 2000; M.S., 2001.
Thesis: Electron Transfer through Organic and Biological Molecules.
- Alexander Pei-den Lin (*Biochemistry and Molecular Biophysics*) B.S., California Institute of Technology 2003.
Thesis: Noninvasive Imaging of Carotid Arterial Strain Using Displacement Encoded MRI.
- Bo-Lin Lin (*Chemistry*) B.S., University of Science and Technology of China 2003.
Thesis: A Combined Experimental and Computational Study of Ligand Effects on C-H Bond Activation by Palladium and Platinum Complexes.
- James R. Maiolo III (*Chemistry and Computer Science*) B.A., Swarthmore College 2003.
Thesis: Photoelectrochemistry of Microstructured Silicon Materials for Solar Energy Applications.
- Stacey Ann Maskarinec (*Chemistry*) B.S., The University of Chicago 2002.
Thesis: Engineering Protein-Based Biomaterials with Biological and Mechanical Cues to Direct Cellular Behavior.
- John Charles McKeen (*Chemical Engineering*) B.S. (*Chemical Engineering and Electrical Engineering*), University of Minnesota—Twin Cities 2003; M.S., 2004.
Thesis: Proton and Ion Conductivity in Microporous Materials.

Doctor of Philosophy continued

- Shane Michael Murphy (*Chemical Engineering*) B.S., University of Colorado at Boulder 2000.
Thesis: Analysis of the Chemical Composition of Atmospheric and Chamber Generated Aerosol Using Mass Spectrometry.
- Heather Elizabeth Murrey (*Biochemistry and Molecular Biophysics*) B.A., M.S., Brandeis University 2000.
Thesis: Identification and Characterization of the Plasticity-Relevant Fucose- α (1-2) Galactose Glycoproteome from Mouse Brain.
- Kimberly Marshall Papadantonakis (*Chemistry*) B.S., City University of New York—John Jay College 2002.
Thesis: Exploration of Physisorbed Monolayers for Molecular-Scale Surface Patterning.
- Heidi Kathleen Privett (*Chemistry*) B.S., Centre College 2002.
Thesis: An Iterative Approach to *de novo* Computational Enzyme Design and the Successful Application to the Kemp Elimination.
- James William Puckett (*Chemistry*) A.B., Harvard College 2003.
Thesis: Microarray and Genome-wide Sequencing Approaches to Characterizing DNA Binding Molecules.
- Erik A. Rodriguez (*Chemistry*) B.S., California Institute of Technology 2002.
Thesis: *In Vivo* Incorporation of Multiple Unnatural Amino Acids.
- Rosemary Dyane Rohde (*Chemistry*) B.S., University of California, Los Angeles 2003.
Thesis: Developing High-Affinity Protein Capture Agents and Nanotechnology-Based Platforms for *In vitro* Diagnostics.
- Ian Ross McKay Shapiro (*Chemistry*) B.S., California Institute of Technology 2000.
Thesis: Observation of Single-Molecule Rotational Diffusion at Microsecond Timescale by Polarized Fluorescence Correlation Spectroscopy.
- Bonnie Ann Sheriff (*Chemistry*) B.S., University of Kansas 2003.
Thesis: Silicon Nanowires and Silicon/Molecular Interfaces for Nanoscale Electronics.
- Jennifer Lynn Stockdill (*Chemistry*) B.S., Virginia Polytechnic Institute and State University 2003.
Thesis: Forays into the Synthesis of Zoanthanol: Intriguing Patterns in Reactivity and Selectivity.
- Ismet Çağlar Tanrikulu (*Biochemistry and Molecular Biophysics*) B.A., Ohio Wesleyan University 2000.
Thesis: Discovery of Aminoacyl-tRNA Synthetase Mutants for the Incorporation of Non Canonical Amino Acids into Proteins.
- Michael McCann Torrice (*Chemistry*) S.B., Massachusetts Institute of Technology 2002.
Thesis: Chemical-Scale Studies of the Nicotinic and Muscarinic Acetylcholine Receptors.

Doctor of Philosophy continued

- Chad David Vecitis (*Chemistry*) B.S., The Johns Hopkins University 2001.
Thesis: Chemical Reactions at Aqueous Interfaces.
- Ron Walker (*Chemistry*) B.S., Southern University A&M 2003.
Thesis: Functionalized Polymers from Ring-Opening Metathesis Polymerization through Monomer Design.
- David Richard Weinberg (*Chemistry*) B.A., University of California, San Diego 2001.
Thesis: Investigations into the Requirements for Homogeneous Platinum- and Iridium-Catalyzed Oxidative C-H Bond Functionalization.
- Matthew Thomas Whited (*Chemistry*) B.S., Davidson College 2004.
Thesis: Synthetic and Mechanistic Studies of Small-Molecule Activation at Low-Valent Iron, Cobalt, and Iridium Centers.
- Heather L. Wiencko (*Chemistry*) B.S., Georgetown University 2002.
Thesis: Adrenergic Receptors: Model Systems for Investigation of GPCR Structure and Function.
- Marc Dominic Woodka (*Chemical Engineering*) B.S., Rensselaer Polytechnic Institute 2003.
Thesis: Increased Classification Rates of Chemical Vapor Detectors Using Novel Sensor Types and Optimized Sensing Geometries.
- Ke Xu (*Chemistry*) B.E., Dalian Maritime University 1999.
Thesis: Nonlinear Electrical Properties of One-Dimensional Nanostructures.
- Ding-Shyue (Jerry) Yang (*Chemistry*) B.S., National Taiwan University 1997; M.S., 1999.
Thesis: Ultrafast Electron Crystallography: Principles and Applications.

DIVISION OF ENGINEERING AND APPLIED SCIENCE

- James Richard Adleman (*Electrical Engineering*) B.S.E., Duke University 2000; M.S., California Institute of Technology 2004.
Thesis: Plasmonic Nanoparticles for Optofluidic Applications.
- Motofumi Arii (*Electrical Engineering and Planetary Science*) B.E., Kyushu Institute of Technology 1995; M.E., 1997; M.S., California Institute of Technology 2005.
Thesis: Retrieval of Soil Moisture under Vegetation Using Polarimetric Radar.
- Blake Waters Axelrod (*Applied Physics*) B.S., Haverford College 1999; M.S., California Institute of Technology 2005.
Thesis: Single Cell Pico Force Microscopy - A Novel Tool for High Resolution Measurement of Cell Forces.
- Joseph Cheney Bardin (*Electrical Engineering*) B.S., University of California, Santa Barbara 2003; M.S., 2005.
Thesis: Silicon-Germanium Heterojunction Bipolar Transistors for Extremely Low-Noise Applications.

Doctor of Philosophy continued

- Rajan Bhattacharyya (*Computation and Neural Systems*) B.S., University of California, Berkeley 2001.
Thesis: Egocentric Distance Encoding in the Posterior Parietal Cortex.
- Julia Marie Badger Braman (*Mechanical Engineering and Planetary Science*) B.S., Purdue University 2003; M.S., California Institute of Technology 2005.
Thesis: Safety Verification and Failure Analysis of Goal-Based Hybrid Control Systems.
- Signe Lauren Bray (*Computation and Neural Systems*) B.A.Sc., University of Waterloo 2003.
Thesis: Neural Mechanisms Underlying the Influence of Associative Learning on Valuation and Decision-Making in Humans.
- Sarah Katherine Brenner (*Bioengineering*) B.S., M.S., Stanford University 2002.
Thesis: Engineering Synthetic Biofilm-Forming Microbial Consortia.
- Agostino Capponi (*Computer Science and Applied and Computational Mathematics*) B.S., University of Rome “La Sapienza” 2001.
Thesis: Credit Risk and Nonlinear Filtering: Computational Aspects and Empirical Evidence.
- Gwyneth Megan Card (*Bioengineering*) A.B., Harvard College 2001.
Thesis: Neural Control and Biomechanics of Flight Initiation in *Drosophila melanogaster*.
- Moran Cerf (*Computation and Neural Systems*) B.Sc., Tel-Aviv University 2000; M.A., 2002.
Thesis: Competition and Attention in the Human Brain Eye-Tracking and Single-Neuron Recordings in Healthy Controls and Individuals with Neurological and Psychiatric Disorders.
- Chun-Yang Chen (*Electrical Engineering and Applied and Computational Mathematics*) B.S., National Taiwan University 2000; M.S., 2002.
Thesis: Signal Processing Algorithms for MIMO Radar.
- Po-Jui Chen (*Electrical Engineering*) B.S., National Taiwan University 2002; M.S., California Institute of Technology 2004.
Thesis: Implantable Wireless Intraocular Pressure Sensors.
- Wei-Ting Chen (*Environmental Science and Engineering*) B.S., National Taiwan University 2001; M.S., California Institute of Technology 2004.
Thesis: I. Global Simulations of Interactions between Aerosols and Future Climate and II. Sensitivity of Multiangle Imaging to the Optical and Microphysical Properties of Biomass Burning Aerosols.
- Yan Chen (*Bioengineering*) B.S., Tsinghua University 2002; M.S., California Institute of Technology 2007.
Thesis: Integration of Dye Lasers and Microfluidics for Biochemical Analysis.

Doctor of Philosophy continued

- Sai Hung Cheung (*Civil Engineering*) B.E., Hong Kong University of Science and Technology 2001; M.S., 2003.
Thesis: Stochastic Analysis, Model and Reliability Updating of Complex Systems with Applications to Structural Dynamics.
- Hsin-Ying Chiu (*Applied Physics*) B.S., National Tsing Hua University 2000; M.S., 2002; M.S., California Institute of Technology 2004.
Thesis: Thermal Properties and Nanoelectromechanical System Based on Carbon Nanotubes.
- Daniel Chung (*Aeronautics*) B.E., University of Melbourne 2003.
Thesis: Numerical Simulation and Subgrid-scale Modeling of Mixing and Wall-Bounded Turbulent Flows.
- Francesco Ciucci (*Mechanical Engineering*) Diplôme d'Ingénieur, École Centrale Paris 2001; Laurea in Ingegneria Aerospaziale, Politecnico Di Milano 2003; M.S., California Institute of Technology 2004.
Thesis: Continuum Modeling of Mixed Conductors: A Study of Ceria.
- Vikram Vijay Deshpande (*Applied Physics*) B.Tech., M.Tech., Indian Institute of Technology, Bombay 2002; M.S., California Institute of Technology 2004.
Thesis: One-Dimensional Physics of Interacting Electrons and Phonons in Carbon Nanotubes.
- Matthew J. Dicken (*Applied Physics*) B.S. (*Chemical Engineering and Physics*), University of California, San Diego 2003.
Thesis: Active Oxide Nanophotonics.
- Jennifer Anne Dionne (*Applied Physics*) B.S., Washington University in Saint Louis 2003; M.S., California Institute of Technology 2005.
Thesis: Flatland Photonics: Circumventing Diffraction with Planar Plasmonic Architectures.
- Jennifer Ann Franck (*Mechanical Engineering*) B.S., University of Virginia 2003.
Thesis: Large-Eddy Simulation of Flow Separation and Control on a Wall-Mounted Hump.
- Hilary K. Glidden (*Computation and Neural Systems*) B.A., University of Cambridge 2003.
Thesis: Tracker Effector-Specific and Motor Planning Signals in Human Frontal and Parietal Cortices: Relevance for Goal-Directed Action and Neural Prosthetics.
- Wei Hsin Gu (*Electrical Engineering and Mathematics*) B.S., National Tsing Hua University 1999; M.S., 2001; M.S., California Institute of Technology 2004.
Thesis: On Achievable Rate Regions for Source Coding Over Networks.
- Feras Habbal (*Mechanical Engineering and Applied Physics*) B.S., The University of Texas at Austin 2003; M.S., California Institute of Technology 2004.
Thesis: The Optimal Transportation Meshfree Method for General Fluid Flows and Strongly Coupled Fluid-Structure Interaction Problems.

Doctor of Philosophy continued

- Benjamin Lee Hansen (*Materials Science and Mechanical Engineering*) B.S., Brigham Young University 2002; M.S., California Institute of Technology 2005.
Thesis: Modeling Metallic Single Crystal Plastic Hardening Through the Evolution of Dislocation Subgrain Structures.
- Douglas C. Hofmann (*Materials Science*) A.A., A.S., Santa Rosa Junior College 2001; B.S., University of California, San Diego 2003; M.S., 2004.
Thesis: Designing Bulk Metallic Glass Matrix Composites with High Toughness and Tensile Ductility.
- Nicolas Henry Hudson (*Mechanical Engineering and Control and Dynamical Systems*) B.E., University of Canterbury 2003; M.S., California Institute of Technology 2005.
Thesis: Inference in Hybrid Systems with Applications in Neural Prosthetics.
- Thomas J. Johnson (*Applied Physics*) B.S., University of Oregon 2002; M.S., California Institute of Technology 2004.
Thesis: Silicon Microdisk Resonators for Nonlinear Optics and Dynamics.
- Shankar Kalyanaraman (*Computer Science*) B.Tech., Indian Institute of Technology, Madras 2001; M.S., California Institute of Technology 2006.
Thesis: Limited Randomness in Games, and Computational Aspects of Revealed Preference.
- Brendan Melville Kayes (*Applied Physics*) B.A., B.S., The University of Auckland 2001; B.S. (Honors), 2002; M.S., California Institute of Technology 2004.
Thesis: Radial pn Junction, Wire Array Solar Cells.
- Alex Kelly (*Applied Mechanics*) B.M.E., University of Delaware 2001; M.S., California Institute of Technology 2002.
Thesis: A Constitutive Relation for Shape-Memory Alloys.
- Mikhail N. Kislitsyn (*Materials Science*) B.S., Higher Chemical College of the Russian Academy of Sciences 2001; M.S., 2003; M.S., California Institute of Technology 2005.
Thesis: Materials Chemistry of Superprotonic Solid Acids.
- Oleg B. Kogan (*Materials Science*) B.S., Case Western Reserve University 2001; M.S., California Institute of Technology 2004.
Thesis: Stochastic and Collective Properties of Nonlinear Oscillators.
- Erin Crystal Koos (*Mechanical Engineering and Applied Physics*) B.S., Harvey Mudd College 2003; M.S., California Institute of Technology 2004.
Thesis: Rheological Measurements in Liquid-Solid Flows.
- Richard Michael Jack Kramer (*Aeronautics*) B.S., University of Auckland 2004; M.S., California Institute of Technology 2005.
Thesis: Stable High-Order Finite-Difference Interface Schemes with Application to the Richtmyer-Meshkov Instability.

Doctor of Philosophy continued

- Sharlotte Lorraine Bolyard Kramer (*Aeronautics and Applied Physics*) B.S., University of Virginia 2004; M.S., California Institute of Technology 2005.
Thesis: Phase-Shifting Full-Field Interferometric Methods for In-Plane Tensorial Stress Determination for Fracture Studies.
- Max G. Kresch (*Materials Science*) B.A., Pomona College 1999; M.S., California Institute of Technology 2004.
Thesis: Temperature Dependence of Phonons in Elemental Cubic Metals Studied by Inelastic Scattering of Neutrons and X-Rays.
- Deepak Kumar (*Applied Physics*) B.Tech., Indian Institute of Technology, Bombay 2001; M.S., Texas A&M University 2003; M.S., California Institute of Technology 2004.
Thesis: Experimental Investigations of Magnetohydrodynamic Plasma Jets.
- Gabriel A. Kwong (*Bioengineering*) B.S., University of California, Berkeley 2002.
Thesis: DNA Encoded Biotechnologies for Informative Cancer Diagnostics.
- Peter Anthony Leong (*Applied Physics*) B.S., Columbia University 1999; M.S., California Institute of Technology 2004.
Thesis: Computational Challenges in High-Resolution Cryo-Electron Microscopy.
- Bo Li (*Aeronautics*) B.E., Beijing University of Aeronautics and Astronautics 2001; M.E., 2003.
Thesis: The Optimal Transportation Method in Solid Mechanics.
- John Jianzhong Li (*Applied Physics*) B.S., University of Science and Technology of China 1984; M.S., California Institute of Technology 2002.
Thesis: Study of Liquid Metals by Electrostatic Levitation.
- Wen Li (*Electrical Engineering*) B.S., Tsinghua University 2001; M.S., 2003; M.S., California Institute of Technology 2004.
Thesis: Integrated Retinal Implants.
- Zhiyi Li (*Applied and Computational Mathematics*) B.S., Peking University 2003.
Thesis: High-Order Solution of Elliptic Partial Differential Equations in Domains Containing Conical Singularities.
- Yi Liu (*Mechanical Engineering*) B.E., Tsinghua University 2003.
Thesis: Three-dimensional Elastodynamic Modeling of Frictional Sliding with Application to Intersonic Transition.
- Hsi-Wen Lo (*Electrical Engineering*) B.S., National Taiwan University 2003; M.S., California Institute of Technology 2004.
Thesis: Thin Film Silicon for Implantable Electronics.
- Xiao Lu (*Aeronautics*) B.E., Tsinghua University 2003; M.S., California Institute of Technology 2004.
Thesis: Combined Experimental and Numerical Study of Spontaneous Dynamic Rupture on Frictional Interfaces.

Doctor of Philosophy continued

- Leonard Joseph Lucas (*Mechanical Engineering*) B.S., Carnegie Mellon University 2004.
Thesis: Uncertainty Quantification Using Concentration-of-Measure Inequalities.
- Matthew S. Lucas (*Materials Science*) B.S. (*Materials Science and Physics*), Carnegie Mellon University 2003; M.S., California Institute of Technology 2005.
Thesis: Cluster Expansion Applied to Inelastic Scattering Experiments.
- Mark Edward Lyon (*Applied and Computational Mathematics*) B.S., Brigham Young University 2002; M.S., 2003.
Thesis: High-Order Unconditionally-Stable FC-AD PDE Solvers for General Domains.
- Yuki Matsuda (*Materials Science*) B.A., Saitama University 1996; M.S., Hokkaido University 1998; M.S., California Institute of Technology 2004.
Thesis: Ab Initio Quantum Mechanical Studies in Electronic and Structural Properties of Carbon Nanotubes and Silicon Nanowires.
- Christopher Paul Michael (*Applied Physics*) B.S., (*Materials Science and Physics*), University of Illinois at Urbana–Champaign 2003; M.Phil., University of Cambridge 2004; M.S., California Institute of Technology 2008.
Thesis: Optical Material Characterization Using Microdisk Cavities.
- Marcus Quintana Mitchell (*Computation and Neural Systems*) A.B., Harvard College 1989.
Thesis: Dynamic Simulation and Control of Articulated Limbs.
- Eric Paul Ostby (*Electrical Engineering*) B.S., University of Minnesota 2002; M.S., California Institute of Technology 2004.
Thesis: Photonic Whispering-Gallery Resonators in New Environments.
- Jonathan Andrew Othmer (*Applied and Computational Mathematics*) B.A. (*Mathematics and Music*), Williams College 2002.
Thesis: Algorithms for Mapping Nucleic Acid Free Energy Landscapes.
- Raviv Perahia (*Applied Physics*) B.A., B.S., Boston University 2003; M.S., California Institute of Technology 2005.
Thesis: Investigation and Application of Microscale Semiconductor Lasers and Cavities.
- Poh Chieh Benny Poon (*Aeronautics*) A.B., B.S., University of Illinois at Urbana–Champaign 2004; M.S., California Institute of Technology 2005.
Thesis: A Critical Appraisal of Nanoindentation with Application to Elastic-Plastic Solids and Soft Materials.
- Julián José Rímoli (*Aeronautics*) Ingeniero Aeronáutico, Universidad de la Plata 2001; M.S., California Institute of Technology 2005.
Thesis: A Computational Model for Intergranular Stress Corrosion Cracking.
- Ling Shi (*Control and Dynamical Systems*) B.E., Hong Kong University of Science and Technology 2002.
Thesis: Resource Optimization for Networked Estimator with Guaranteed Estimation Quality.

Doctor of Philosophy continued

- Ari Joshua Stern (*Applied and Computational Mathematics*) B.A., Columbia University 2001; M.A., 2002.
Thesis: Geometric Discretization of Lagrangian Mechanics and Field Theories.
- Jin-Yoo Suh (*Materials Science*) B.S., Seoul National University 1995; M.S., 1997; M.S., California Institute of Technology 2005.
Thesis: Fracture Toughness Study on Bulk Metallic Glasses and Novel Joining Method Using Bulk Metallic Glass Solder.
- Daniel Sutoyo (*Civil Engineering*) B.S., Harvey Mudd College 2004; M.S., California Institute of Technology 2005.
Thesis: Hysteretic Characteristics of Wood-Frame Structures Under Seismic Motions.
- Tristan Scott Ursell (*Applied Physics*) B.S., Rensselaer Polytechnic Institute 2003; M.S., California Institute of Technology 2005.
Thesis: Stretching the Definition of a Lipid Bilayer: Elasticity's Role in Protein and Lipid Organization.
- Guangxi Wang (*Electrical Engineering*) B.S., Lafayette College 2003; M.S., California Institute of Technology 2004.
Thesis: Compact Nonlinear Optical Devices in Silicon-Polymer Hybrid Material System.
- Hua Wang (*Electrical Engineering*) B.S., Tsinghua University 2003.
Thesis: Precision Frequency and Phase Synthesis Techniques in Integrated Circuits for Biosensing, Communication and Radar.
- Yu-Jiu Wang (*Electrical Engineering*) B.S., National Taiwan University 2001.
Thesis: Circuits and Systems for Wireless Concurrent Communication.
- Casimir M. Wierzynski (*Computation and Neural Systems*) S.B., S.M., Massachusetts Institute of Technology 1992; B.A., University of Cambridge 1994.
Thesis: Prefrontal-Hippocampal Interactions.
- Richard Alan Wildman, Jr. (*Environmental Science and Engineering*) B.S., Yale College 2001; M.S., California Institute of Technology 2005.
Thesis: Biogeochemical Implications of Changing Groundwater and Surface Water Hydrology at Lake Powell, Utah and Arizona, and the Merced River, California, USA.
- Jigang Wu (*Electrical Engineering*) B.S., Tsinghua University 2001; M.S., 2004; M.S., California Institute of Technology 2005.
Thesis: Coherence Domain Optical Imaging Techniques.
- Jing Yang (*Civil Engineering and Geophysics*) B.E., Tongji University 2001; M.S., California Institute of Technology 2003.
Thesis: Nonlinear Responses of High-Rise Buildings in Giant Subduction Earthquakes.

Doctor of Philosophy continued

- Or Yogeve (*Applied Mechanics and Applied and Computational Mathematics*) B.S., Technion – Israel Institute of Technology 2003; M.S., 2005.
Thesis: Computational Evolutionary Embryogeny.
- Ling Zheng (*Mechanical Engineering and Applied Physics*) B.S., Tsinghua University 2003; M.S., California Institute of Technology 2005.
Thesis: Wrinkling of Dielectric Elastomer Membranes.

DIVISION OF GEOLOGICAL AND PLANETARY SCIENCES

- Eun-seo Choi (*Geophysics*) B.S., Seoul National University 1999.
Thesis: Computational Approaches to Localized Deformation within the Lithosphere and for Crust-Mantle Interactions.
- Nathan John Downey (*Geophysics*) B.S., University of Alberta 2001.
Thesis: Tectonic History of the Osbourn Spreading Center and Dynamic Subsidence of the Congo Basin.
- Weifu Guo (*Geochemistry*) B.S., University of Science and Technology of China 2002.
Thesis: Carbonate Clumped Isotope Thermometry: Applications to Carbonaceous Chondrites and Effects of Kinetic Isotope Fractionation.
- Xin Guo (*Planetary Science and Electrical Engineering*) B.S., Peking University 2003; M.S., California Institute of Technology 2005.
Thesis: Modeling Studies Related to Carbon Dioxide Phase Change on Mars.
- Yoshihiro Kaneko (*Geophysics*) A.S., Foothill College 2002; B.S., University of California, Los Angeles 2003; M.S., California Institute of Technology 2005.
Thesis: Investigations of Earthquake Source Processes Based on Fault Models with Variable Friction Rheology.
- Kevin Wayne Lewis (*Planetary Science and Geology*) B.S. (*Mathematics and Physics*), Tufts University 2003.
Thesis: The Rock Record of Mars: Structure, Sedimentology and Stratigraphy.
- Ryan Petterson (*Geology*) B.S., University of California, Berkeley 2000; M.S., California Institute of Technology 2005.
Thesis: I. Glaciogenic and Related Strata of the Neoproterozoic Kingston Peak Formation in the Panamint Range, Death Valley Region, California. II. The Basal Ediacaran Noonday Formation, Eastern California, and Implications for Laurentian Equivalents III. Rifting of Southwest Laurentia During the Sturtian-Marinoan Interglacial: The Argenta Orogeny.
- Darin Alan Ragozzine (*Planetary Science*) A.B., Harvard College 2004.
Thesis: Orbital Dynamics of Kuiper Belt Object Satellites, a Kuiper Belt Family, and Extra-Solar Planet Interiors.

Doctor of Philosophy continued

- Colette Vanessa Salyk (*Planetary Science*) S.B., Massachusetts Institute of Technology 2003; M.S., California Institute of Technology 2005.
Thesis: Molecular Spectroscopy of Planet-Forming Regions in Circumstellar Disks.
- Daoyuan Sun (*Geophysics*) B.S., University of Science and Technology of China 2000; M.S., 2003.
Thesis: Seismic Structure of the Lower Mantle.
- Carl Harlan Tape (*Geophysics*) B.A., Carleton College 2001; M.Sc., University of Oxford 2004.
Thesis: Seismic Tomography of Southern California Using Adjoint Methods.
- Charles Steven Verdel (*Geology*) B.S., Colorado School of Mines 1997; M.S., 2002.
Thesis: I. Cenozoic Geology of Iran: An Integrated Study of Extensional Tectonics and Related Vulcanism. II. Ediacaran Stratigraphy of the North American Cordillera: New Observations from Eastern California and Northern Utah.
- Sloane John Wiktorowicz (*Planetary Science and Astronomy*) B.S., University of California, Santa Cruz 2003.
Thesis: Unambiguous Black Hole Mass from Polarimetry and Application to Hot Jupiters.

DIVISION OF THE HUMANITIES AND SOCIAL SCIENCES

- Michael R. Alton (*Social Science*) B.A., The University of Chicago 2004
Thesis: Continuous Double Auctions and Microstructure.
- Serkan Küçükşenel (*Social Science*) B.A., B.S., Koc University 2002; M.A., Sabanci Universitesi 2004.
Thesis: Incentives and Institutions: Essays in Mechanism Design and Game Theory with Applications.
- Morgan Hunt Llewellyn (*Social Science*) B.A., Hope College 2002.
Thesis: Rational Models of Political Behavior: The Effects of Opinion, Information, and Procedures.
- Alan Daniel Miller (*Social Science*) B.A., University of California, Berkeley 1998; J.D., Northwestern University School of Law 2001; M.S., California Institute of Technology 2006.
Thesis: Essays on Law and Economics.
- Noah Myung (*Social Science*) B.S., University of California, Los Angeles 2003.
Thesis: Organizational and Financial Economics.
- Laura Elizabeth Panattoni (*Social Science*) B.S., Duke University 2000; M.S., California Institute of Technology 2005.
Thesis: On the Interaction Between Firm Level Variables, the CAPM Beta, and Stock Returns.

Doctor of Philosophy continued

David Thomas Young (*Social Science*) B.Sc., University of Canterbury 2001; M.S., California Institute of Technology 2005.

Thesis: Firm Behaviour in Markets with Capacity Constraints.

DIVISION OF PHYSICS, MATHEMATICS AND ASTRONOMY

Michael A. Armen (*Physics*) B.S., University of California, Berkeley 1999.

Thesis: Bifurcations in Single Atom Cavity QED.

Andrew David Beyer (*Physics*) B.S., The University of Texas at Austin 2002.

Thesis: Studies of the Low-Energy Quasiparticle Excitations in High-Temperature Superconducting Cuprates with Scanning Tunneling Spectroscopy and Magnetization Measurements.

Waheb Bishara (*Physics*) B.A., B.Sc., Technion – Israel Institute of Technology 2003.

Thesis: Non-Abelian Quantum Hall States and Fractional Statistics.

Michael Boyle (*Physics*) B.A., S.B., The University of Chicago 2002.

Thesis: Accurate Gravitational Waveforms from Binary Black-hole Systems.

Elina Brobeck (*Astrophysics*) S.B., Massachusetts Institute of Technology 2002.

Thesis: Measurement of Ultra-High Energy Cosmic Rays with CHICOS.

Patrick Brian Cameron (*Astrophysics*) B.A., Cornell University 2003.

Thesis: The Formation and Evolution of Neutron Stars: Astrometry, Timing, and Transients.

Stephen Bradley Cenko (*Physics*) A.B., Harvard College 2002.

Thesis: The Energetics and Environments of *Swift* Gamma-Ray Bursts.

Hsin Cynthia Chiang (*Physics*) B.S., University of Illinois at Urbana–Champaign 2002.

Thesis: Observation of Cosmic Microwave Background Polarization with BICEP.

Benjamin Forster Collins (*Physics*) B.A., Columbia University 2003.

Thesis: Understanding the Solar System with Numerical Simulations and Lévy Flights.

Elizabeth Wilcut Connolly (*Physics*) B.A., University of California, Berkeley 2000.

Thesis: Experiments with Toroidal Microresonators in Cavity QED.

Stuartt Allan Corder (*Astrophysics*) B.S., University of Kansas 2001.

Thesis: Optimizing Image Fidelity with Arrays.

Adrienne Lynn Erickcek (*Physics*) A.B. Princeton University 2003.

Thesis: The Consequences of Modifying Fundamental Cosmological Theories.

Kovid Goyal (*Physics*) B.S., St. Xavier's College 2003.

Thesis: Using Graph States for Quantum Computation and Communication.

Asa Sies Hopkins (*Physics*) B.S., Haverford College 2001; M.S., California Institute of Technology 2007.

Thesis: Reduced Order Models for Open Quantum Systems.

Doctor of Philosophy continued

- Drew Garvin Keppel (*Physics*) B.S., University of Wisconsin—Madison 2004.
Thesis: Signatures and Dynamics of Compact Binary Coalescences and a Search in LIGO's S5 Data.
- David Richard Law (*Astrophysics*) B.A., University of Virginia 2003.
Thesis: The Kiloparsec-Scale Structure and Kinematics of High-Redshift Star-Forming Galaxies.
- Chao Li (*Physics*) B.S., University of Science and Technology of China 2004; M.S., California Institute of Technology 2008.
Thesis: Topics in Theoretical Astrophysics.
- Ming-Shr Lin (*Physics, Business Economics and Management and Electrical Engineering*) B.S., National Taiwan University 2000.
Thesis: Applications of Combinatorial Analysis to the Calculation of the Partition Function of the Ising Model.
- Karín Menéndez Delmestre (*Astrophysics*) B.S., McGill University 2002.
Thesis: The Luminous, the Massive and the Dusty: A Near- to Mid-Infrared Spectroscopic Study of Submillimeter Galaxies.
- Russell Lowell Miller (*Physics*) B.S., The University of Michigan 2003.
Thesis: Characterization and Control of a Strongly-Coupled Atom-Cavity System.
- Dmitry Pavlov (*Mathematics*) B.S., Moscow State University 2003.
Thesis: Structure-Preserving Discretization of Incompressible Fluids.
- Timofei Piatenko (*Physics*) B.S., Cornell University 2002.
Thesis: Search for $B \rightarrow (p/w) \Upsilon$ Decays at BaBar.
- Daniel Michael Prigel (*Mathematics*) B.S., University at Albany 2003; M.S., California Institute of Technology 2008.
Thesis: Embeddings of One-Factorizations of Hypergraphs and Decompositions of Partitions.
- Paige Alicia Randall (*Physics and Applied and Computational Mathematics*) B.S., University of Washington 2002; M.S., (*Applied and Computational Mathematics and Physics*), California Institute of Technology 2008.
Thesis: Sparse Recovery via Convex Optimization.
- Abhishek Saha (*Mathematics*) B.Math., Indian Statistical Institute 2004.
Thesis: On Critical Values of L -Functions for Holomorphic Forms on $GSp(4) \times GL(2)$.
- Hilke Elisabeth Schlichting (*Astrophysics*) B.A., M.Sc., University of Cambridge 2004; M.A., 2007.
Thesis: Understanding the Origin of Planetary Systems: Studying the Kuiper Belt and the Dynamics of Planet Formation.
- Daniel Stark (*Astrophysics*) B.S., University of Wisconsin—Madison 2003.
Thesis: Observing Galaxy Formation in the First Two Billion Years.

Doctor of Philosophy continued

Sean Michael Tulin (*Physics*) B.A., The Johns Hopkins University 2003.

Thesis: Supersymmetry: From Baryogenesis at the Electroweak Phase Transition to Low-Energy Precision Experiments.

Gregory Lee Ver Steeg (*Physics*) B.S., Drake University 2003.

Thesis: Foundational Aspects of Nonlocality.

Mirjana Vuletić (*Mathematics*) B.S., University of Novi Sad 2000; M.S., 2003.

Thesis: The Pfaffian Schur Process.

Manwah Wong (*Mathematics*) B.A., Princeton University 2004.

Thesis: Orthogonal Polynomials, Paraorthogonal Polynomials, and Point Perturbation.

Dongping Zhuang (*Mathematics*) B.S., Peking University 2001; M.S., 2004.

Thesis: A Geometric Study of Commutator Subgroups.