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# 2004–2005 ACS Division of Organic Chemistry Graduate Fellowship Awards

The Division of Organic Chemistry annually awards fellowships to outstanding third and fourth year graduate students in organic chemistry. The program, now in its 24th year, has awarded over 275 fellowships. The complete list of Fellows is available on the Division of Organic Chemistry web site at http://organicdivision.org/fellowships_previous.html.

The fellowship stipend this year is $20,000, and the Fellows will travel to the 2005 National Organic Symposium to present a poster on their work. Each of the fellowships is sponsored by a prominent company or organization. Awardees are selected by an independent committee, and evidence of research accomplishments is an important factor in the selection. The applicants for the fellowship submit a short original essay as part of the competition, and the essays of the award winners are available on the Division of Organic Chemistry web site (http://organicdivision.org/fellowship_awardee_bios_04.html).

I want to take this opportunity to personally thank all the companies and individuals who have supported the program this year. Times are tight, and we continue to lose company sponsors to mergers about as fast as we add new ones. If your company is not currently sponsoring a fellowship, please consider stepping up to support this worthwhile program. I will welcome contacts both from companies seeking to sponsor annual fellows as well as from individuals and organizations seeking to endow them. There are always many more deserving applicants than there are fellowships!

The Division of Organic Chemistry congratulates the following 14 award winners, gratefully acknowledges the sponsors, and thanks *Organic Letters* for the opportunity to publish these biographical sketches.

Scott Rychnovsky
Chair, Division of Organic Chemistry Graduate Fellowship Program
University of California, Irvine, September 25, 2004

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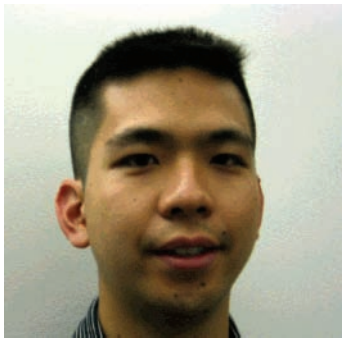
**Erik J. Alexanian**
Sponsor: GlaxoSmithKline
*University: Princeton University*
Advisor: Erik J. Sorensen

**Essay - Transition Metal-Mediated Vicinal Aminofunctionalization of Alkenes.** Erik J. Alexanian graduated from Harvard University, Cambridge, MA, with an A.B. cum laude in Chemistry. He is currently a fourth year graduate student with Professor Erik J. Sorensen at Princeton University, Princeton, NJ. Erik contributed to a successful total synthesis of the furanosteroid viridin and is currently developing new transition metal-mediated synthetic methodologies for application to the total synthesis of the cytotoxic bisguanidine alkaloid palau′amine.



**Irwin Chen**
Sponsor: Wyeth Research
*University: Massachusetts Institute of Technology*
Advisor: Alice Ting

**Essay - Recent Advances in the Development of Live Cell-Compatible Chemoselective Ligations.** Irwin Chen graduated from Harvard University, Cambridge, MA, with an A.B. magna cum laude in Chemistry. He is currently a fourth year graduate student in the laboratory of Professor Alice Ting at the Massachusetts Institute of Technology, Cambridge, MA. Irwin's research involves the development of an enzymatic site-specific labeling methodology for proteins of living cells. He has developed a new approach using biotin ligase, which efficiently ligates a ketone analogue of biotin to a 15-amino acid peptide, to successfully label cell surface proteins bearing this peptide tag with biophysical probes.

**Andrew D. Cohen**
Sponsor: Aventis Pharmaceuticals
*University: Johns Hopkins University*
Advisor: John P. Toscano

**Essay - Incorporating 2-Ureido-4[1*H*]-Pyrimidinones into Polymers.** Andrew D. Cohen graduated with an A.B. cum laude in Chemistry from Princeton University, Princeton, NJ. He is currently a fourth year graduate student with Professor John P. Toscano at Johns Hopkins University, Baltimore, MD. Andrew's research is in the general area of mechanistic organic photochemistry using time-resolved infrared (TRIR) spectroscopy. Using TRIR spectroscopy, he has explored the photochemistry of ketone and enone triplet states, *N*-acylnitroindolines, diazeniumdiolates (NONOates), and oxadiazole *N*-oxides, the latter a precursor to the first acylnitroso species directly observed in solution.

**Jennifer M. Heemstra**
Sponsor: Nelson J. Leonard ACS DOC Fellowship, sponsored by Organic Syntheses, Inc.
*University: University of Illinois at Urbana−Champaign*
Advisor: Jeffrey S. Moore

**Essay - DNA-Templated Chemical Reactions.** Jennifer M. Heemstra received a B.S. in Chemistry from the University of California at Irvine, Irvine, CA. She is currently a fourth year graduate student in the laboratory of Professor Jeffrey S. Moore of the University of Illinois at Urbana−Champaign, Urbana, IL. Jennifer's research focuses on using *m*-phenyleneethynylene oligomers as synthetic enzyme mimics. She has utilized hydrogen bonding to template folding and shown that folding promotes the methylation of DMAP-functionalized oligomers. She has also shown that methylation can enhance folding stability through pyridinium−$\pi$ interactions. She has also studied the kinetics of this process and devised a novel indicator for measuring p$K_a$ values in acetonitrile.

**Audris Huang**
Sponsor: Pfizer, Inc.
*University: University of California at Irvine*
Advisor: Larry E. Overman

**Essay - Synthetic Approaches to Tetrodotoxin.** Audris Huang graduated from the University of Illinois at Urbana−Champaign, Urbana, IL, with a B.S. cum laude in Chemistry. Prior to attending graduate school, she worked as a medicinal chemist at Pharmacia Corp. for four years. Audris is currently a fourth year graduate student in Professor Larry E. Overman's laboratory at the University of California at Irvine, Irvine, CA. Her research is directed toward the total synthesis of the complex marine alkaloid palau′amine. She has also developed methodology that involves a chiral electrophile mediated dialkylation and utilized it to complete a practical total synthesis of (−)-phenserine.

**Jennifer E. Klare**
Sponsor: Organic Syntheses, Inc.
*University: Columbia University*
Advisors: Colin Nuckolls

**Essay - Two-Dimensional Organic Chemistry To Create Patterned Reactive Surfaces.** Jennifer E. Klare earned a B.A. in Chemistry (with high honors) from Smith College, Northampton, MA. Jennifer is currently a fourth year graduate student at Columbia University, New York, NY, in Professor Colin Nuckolls' laboratory. Jennifer is interested in the field of single molecule electronics, in which she has synthesized a series of cruciform $\pi$-systems for molecular electronic applications and characterized their self-assembled monolayers. In related work, Jennifer has developed an in situ approach to diversify and extend the monolayers in a controlled, stepwise fashion.

**Peter D. Jarowski**
Sponsor: Organic Reactions, Inc.
*University: University of California at Los Angeles*
Advisors: Ken N. Houk and Miguel A. Garcia-Garibay

**Essay - Filling the Void: Recent Advances in Inorganic−Organic Hybrid Mesoporous Materials.** Peter D. Jarowski received his B.S. in Chemistry from New York University, New York, NY. He is currently a third year graduate student with Professors Ken N. Houk and Miguel A. Garcia-Garibay at the University of California at Los Angeles, Los Angeles, CA. Peter has implemented molecular mechanics and hybrid QM-MM methods to model functional solids to find methods to model the rotational potential of molecules in crystals and crystal dynamics. He has also determined the conjugative stabilization of diynes and the structures and strain energies of expanded polyhedranes by computational methods.

**Tamara E. Munsch**
Sponsor: Schering-Plough Research Institute
*University: Purdue University*
Advisor: Paul G. Wenthold

**Essay - The Energetics of the Phenyl Carbene Rearrangement.** Tamara Munsch received a B.S. in Chemistry from Kansas State University, Manhattan, KS. She is a fourth year graduate student with Professor Paul G. Wenthold at Purdue University, West Lafayette, IN. Tamara's research includes thermochemical studies of open-shell organic molecules, such as triradicals and nitrene radicals, as well as reactivity studies of distonic diradical anions using flowing afterglow-triple quadrupole mass spectrometry. She has also carried out experimental studies of 5-dehydro-1,3-quinodimethane (5-dehydro-*m*-xylylene, DMX), the first known example of an open-shell doublet hydrocarbon.

**David A. Nicewicz**
Sponsor: Novartis Pharmaceuticals
*University: University of North Carolina at Charlotte*
Advisor: Jeffrey S. Johnson

**Essay - Metal-Catalyzed Enantioselective C−C Bond Constructions Employing $^{-}$CN as a Nucleophile**. David Nicewicz earned his B.S. cum laude in Chemistry from the University of North Carolina at Chapel Hill. He is currently a fourth year graduate student in the laboratory of Professor Jeffrey S. Johnson at the University of North Carolina, Chapel Hill, NC. David's research is focused on the development of enantioselective tandem cyanation/Brook rearrangement/C-acylation for the synthesis of densely functionalized malonic acid derivatives. He has also developed a new multicomponent coupling of an acylsilane with various terminal alkynes and aldehydes.

**Jennifer M. Schomaker**
Sponsor: Eli Lilly and Company
*University: Michigan State University*
Advisor: Babak Borhan

**Essay - Recent Advances in Nickel-Catalyzed Reductive Couplings.** Jennifer M. Schomaker graduated from Saginaw Valley State University where she earned a B.S. in Chemistry. Jennifer worked at Dow for several years before beginning graduate school. Jennifer is currently a fourth year graduate student at Michigan State University in Professor Babak Borhan's laboratory. Jennifer's research has resulted in the total syntheses of (+)-tanikolide and haterumalide NA. She is also interested in the development of new synthetic methodologies for the application to total synthesis, as exemplified by the development of a novel and diastereoselective approach to 2,3-disubstituted tetrahydrofurans using a sulfoxonium ylide.

**Jason T. Roland**
Sponsor: Albany Molecular Research, Inc.
*University: University of California at Irvine*
Advisor: Zhibin Guan

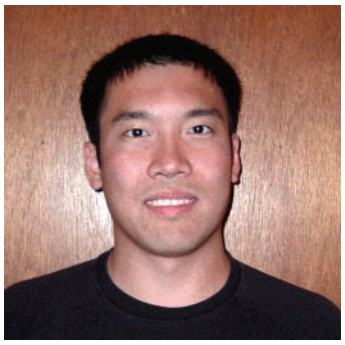
**Essay - Catalytic Methods for the Reductive Coupling of Alkynes.** Jason T. Roland received his B.S. in Chemistry from The Ohio State University, Columbus, OH. He is currently a fourth year graduate student working with Professor Zhibin Guan at the University of California at Irvine, Irvine, CA. Jason's research involves the synthesis and study of biomimetic polymers. He has developed a new polymer that contains a series of intramolecularly *hydrogen-bonded* 2-ureido-4-pyrimidone (UPy) domains that break upon stretching, mimicking the unfolding of titin, an important connective protein.

**W. Michael Seganish**
Sponsor: The Procter & Gamble Company
*University: University of Maryland at College Park*
Advisor: Philip DeShong

**Essay - Advances toward the Enantioselective Total Synthesis of Guanacastepene A.** W. Michael Seganish received a B.S. in Physiology/Neurobiology and Biochemistry cum laude from the University of Maryland at College Park, College Park, MD. He is currently a fourth year graduate student with Professor Philip DeShong at the University of Maryland at College Park, College Park, MD. Michael's research is focused on developing new methodology for the synthesis and palladium-catalyzed cross-coupling of aryl siloxanes and their application toward the total syntheses of the alkaloids colchicine and allocolchicine.

**Raissa M. Trend**
Sponsor: Bristol Myers Squibb Foundation
*University: California Institute of Technology*
Advisor: Brian Stoltz

**Essay - Understanding Asymmetric Induction by $C_1$-Symmetric Ligands.** Raissa M. Trend graduated from the University of Chicago, Chicago, IL, with a B.A. (special honors) in English languages and Literature. She then returned to school at the University of Wisconsin, Madison, where she studied chemistry for 2 years. She is currently a fourth year graduate student in Professor Brian Stoltz's laboratory at the California Institute of Technology, Pasadena, CA, where she has been involved in the development of novel enantioselective palladium-catalyzed oxidation chemistry. She has also devised an experimental model for the aerobic kinetic resolution of secondary alcohols, which involved the preparation of an organometallic analogue of a key intermediate thought to be important in the enantiodetermining step.



**Jimmy Wu**
Sponsor: Merck Research Laboratories
*University: Harvard University*
Advisor: David A. Evans

**Essay - Recent Advances in the Catalytic Asymmetric Ene Reaction.** Jimmy Wu graduated with an A.B. cum laude in Chemistry from Princeton University, Princeton, NJ. Prior to going to graduate school, he spent 2 years as an associate chemist in the process research group at Merck. He is currently a fourth year graduate student at Harvard University, Cambridge, MA, in Professor David A. Evans' laboratory, where he has developed catalytic enantioselective aldol additions to glyoxylate esters using $C_2$-symmetric Sc(III) complexes as chiral Lewis acids. He has also developed highly enantioselective quinone Diels−Alder and ene reactions, using chiral rare-earth metal complexes.

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