

# Director's letter

The past ISP academic year features an incredible spectrum of achievement from ISP students. Accomplishments in the classroom and in research projects have led to awards such as Goldwaters and Fulbrights and to placement in graduate or professional schools including Princeton, Caltech, Berkeley, MIT, Harvard, Ohio State, Wisconsin, and Northwestern! But let's not forget the diversity of other interests of ISP's, which bloomed in 2001-2002. Shakespearean productions, the Chicago marathon, flying, horseback riding, music performance, Ultimate Frisbee, as well as attendance at the AAAS national meeting. I speak for my faculty colleagues and your instructors in saying how impressed we are. Your achievements truly capture the character of ISP.



So what is ISP? Why does it open doors? How does it lead to opportunity and help define career direction? The clearest answer to these questions, the ones most often asked by prospective students or the ones alumni reflect upon, comes from looking at the record. The individual accomplishments of each ISP, separately considered, are significant; together they define a remarkable program. So just look at the rest of this newsletter and previous ones posted on our web site to explore the dimension and range of your successes. It's unmatched anywhere.

The challenges are unambiguous. Looking back, those who have graduated will see that they have been given opportunity but that they have also been amply tested with a rigorous and broad curriculum. By graduation time you will have performed various interesting research projects. At their beginning they must have seemed to you to be disconnected from the more straightforward classroom agenda. Yet in your research you see more deeply the relationships that are articulated theoretically in the classroom. Some of these experiences lead to publication in major research journals. All of them have pushed you to develop the sort of understanding that can only come from substantial focus on a scientific topic.

What about ISP facilities? Steve Daut and the computer committee installed a suite of a dozen new Pentium III's to start off the new academic year. In the early fall the ISP web site got a complete face-lift, providing more information to ISP's, ISP-alums, and prospective students. For example you can find the entire list of students for all entering classes going back to 1976. (Please send us your most current information and keep us up to date on your news.) On the negative side there are goals we have not yet achieved and projects not yet finished! Installation of central air conditioning and building renovations have been put on hold pending resolution of a legal issue with the City of Evanston. It seems that our building is in a recently declared historic district that places constraints on renovation. Even further down the road are plans to develop advanced computer research seminars with a complement of new workstations.

I'm looking forward to another exciting year with the prospect that I will continue to hear great stories and successes from ISP graduates while at the same time we build unique academic careers with current ISP's and newly entering students this fall.

Bill Halperin  
Director, Integrated Science Program and  
John Evans Professor of Physics



# Integrated Science Program Newsletter

NORTHWESTERN UNIVERSITY

### Inside this issue:

Student Achievements	2
Current Students' Summer Plans	3
Thanks to our Donors	5
Congratulations Graduates	3-5
Alumni News	6

### Special points of interest:

- Current Students' Exciting Summer Plans
- ISP Graduates' Amazing Achievements
- Alumni News

# Student Achievements

## As always, we are delighted with our current students' achievements.

Each quarter this year, an average of 30 students participated in independent research in many academic departments including Physics and Astronomy, Chemistry, Computer Science, Neurobiology, and Molecular Biology, just to name a few. Almost without exception, the research advisors commented positively and enthusiastically on the students' work and many compared them to first and second year graduate students!

This year we sent **Elyssa Burg** (EC99) and **Katie Lovejoy** (EC99) to the AAAS meeting in Boston. They saw a lot of great things and came back to report on them in an ISP Student Seminar.

## Awards and Honors

Many of our students were awarded honors based on their research and scholarly achievements. Here are just a few. Many more are mentioned in our 2002 Graduate profiles below.

Congratulations to **Nate Gouwens** (EC99) for winning the prestigious Barry Goldwater Scholarship this year. Great work, Nate! There were 309 scholars selected nationwide, and 2 from Northwestern.

**Zain Dossani** (EC98) who was awarded a Fulbright fellowship in Italy and working with Dr. Cesare Montecucco at the University of Padua on the biochemistry of bacterial neurotoxins.

**Lucas Koerner** (EC99) was chosen as a Katherine L. Kriegbaum Scholar. Lucas will receive a stipend to support his project "Amplitude of Square Waves in Vertically Oscillated Granular Media"

**Fatemeh Afshari** (EC98) was the recipient of the first ever Franklin N. and Lee L. Corbin Prize.

We would also like to thank **Nate Gouwens** and **Katie Lovejoy** for their work on the Student Advisory Board

## Current Students

**Elyssa Burg** (EC99) will be continuing to work in Dr. Ravi Allada's lab in the Neurobiology and Physiology Department. She is working on a project that addresses neuron intracellular communication and its effects on sleep and circadian rhythm. This work is made possible by the Macey fund from which Elyssa won a scholarship.

**Lucas Koerner** (EC99) will be working at an REU through CalTech at the Hanford WA, LIGO site (Laser Interferometry Gravitational Wave Observatory).

Over the summer **Nicole Klekowski** (EC01) will be in Dr. Phyllis Zee's lab at the Northwestern University Medical School doing some research on circadian rhythms and age-related sleep disorders.

This summer **Brandon Toyama** (EC99) will be doing research in Dr. Kazuhiro Nagata's Laboratory at the Institute for Frontier Medical Sciences at Kyoto University in Kyoto, Japan. He will be in Japan for the entire summer.

**Mike Henninger** (EC99) will be working on evolution of binary stars with Vicky Kalogera in the Department of Physics and Astronomy in the theoretical astrophysics group.

**Marco J. Russo** (EC01) will be working with Dr. Enrico Mugnaini at the Northwestern University Medical School in the Department of Cell and Molecular Biology assisting with research on neuroanatomy, neuronal microcircuits, and cell class specific gene expression.

**Alia Majeed** (EC99) received an undergraduate research grant from Northwestern and will be working in Dr. Allada's lab this summer. She'll be making friends with fruit flies while screening them for anesthetic sensitivity to work out the mechanism of isoflurane and other projects yet to be determined.

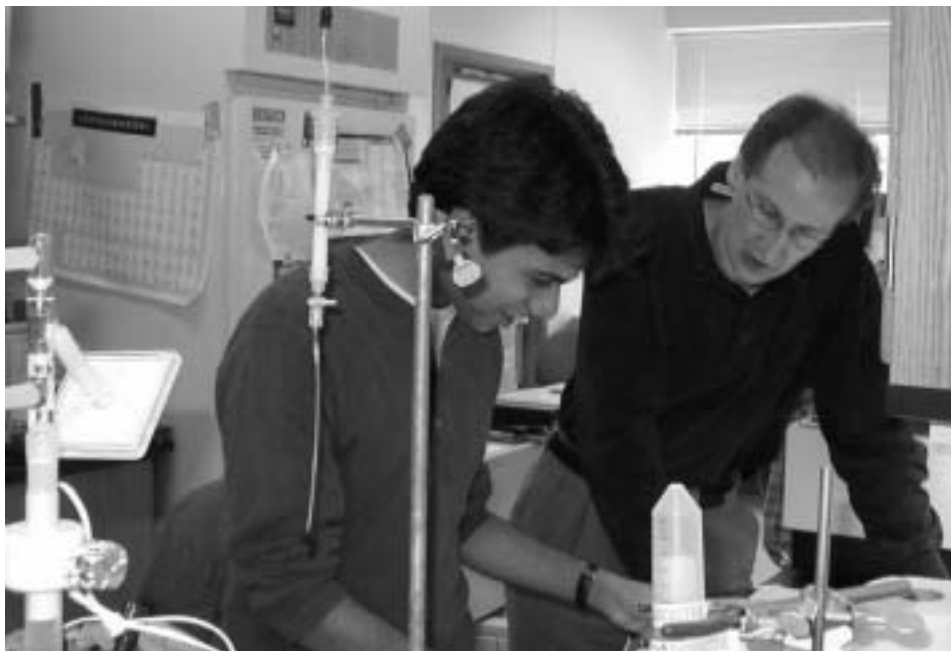


*Ken Yu (EC99) tries out some of our new computers.*

## Current Students

**Wen Liu (EC01)** is planning on staying here over the summer to do research. He'll be in the new Center for Nanofabrication and Molecular Self-Assembly building, working with the Wasielewski group in the Chemistry department. Wen's job will mostly involve the operation of a Femto-second Titanium-Sapphire laser system, and he will be using this to perform ultra-fast chemical kinetics experiments resolved on femtosecond time-scales. The Wasielewski group is mostly interested in the mechanisms of electron transfer between photo-excited donor-acceptor pairs and in applying this to the development of molecular wires and electronic circuits.

**Katie Lovejoy (EC99)** will be in San Jose, California this summer on an NSF REU at IBM. IBM has developed organic molecules that, when attached to a silicon chip, will conduct electricity. She'll be working on synthesis and characterization of the molecules.



*Fulbright Scholar Zain Dossani (EC98) in the lab with Dr. Andreas Mastouschek.*

**Vishal Verma (EC99)** will be staying here this summer, continuing his research in Dr. Terry Sheppard's lab,

in the Chemistry Department. Vishal's work involves the synthesis of DNA-bioconjugates.

## Our Remarkable 2002 Graduates

14 of our students graduated this June. All fourteen are from EC98.

**Fatemeh Afshari (EC98)**, graduated with degrees in ISP, Chemistry, and Biological Sciences. She was the recipient of the Oliver Macy Scholarship, the Freeman Scholarship, Phi Beta Kappa, the Merck Index Award in Organic Chemistry, and was on the Dean's list for 11 out of 11 quarters. Not too shabby! Fatemeh was also the recipient of the first ever Franklin N. and Lee L. Corbin Prize. Fatemeh plans to go to Harvard Dental School in the fall.

**Damian Allen (EC98)** graduated with degrees in ISP, Chemistry, and Biological Sciences. Damian received a Charles D. Hurd Research Scholarship, and Deutscher Akademischer Austausch



*Our illustrious 2002 ISP Graduates*

# Our Remarkable 2002 Graduates

---

**Damian Allen** (*continued*) Dienst Scholarship to attend summer courses at the University of Bayreuth in Germany last year. He also worked for several quarters in the lab of Dr. Linda Hicke (BMBCB) where he worked on the genetic and biochemical characterization of a Yppk1p, which is a protein shown to be involved in ubiquitin-dependent internalization in yeast.

**Donde Anderson** (EC98) graduated with degrees in ISP and Chemistry (Summa Cum Laude). Donde's many honors and awards include the Goldwater Scholarship, the Marple-Schwetzer Memorial Award in Chemistry, and Phi Beta Kappa. Donde was also a Gates Millennium Scholar, a Robert C. Byrd Scholar, and the recipient of an NDSEG Fellowship. Donde worked for many quarters in the laboratory of Dr. Sonbinh Nguyen in the Chemistry Department on the synthesis of novel polymers designed for medical and DNA detection applications. She will pursue her Ph.D. in Organic Chemistry at the California Institute of Technology.

**Adam Butensky-Bartlett** earned degrees in ISP and Biological Science. He was the recipient of the C.V. Starr Scholarship. Adam worked for several quarters with Dr. Andrew Shenker at the Children's Memorial Institute for Education Research as system administrator for Silicon Graphics computers, building molecular models, and assisting in the preparation of grant proposals. He will be teaching math and physics in a private school next year.

**Zain Dossani** (EC98) graduated with degrees in ISP and Biological Science. Zain is a recipient of a Northwestern University Undergraduate Research Grant. In addition, he was awarded a Fulbright fellowship in Italy and will be working with Dr. Cesare Montecucco at the University of Padua on the biochemistry of bacterial neurotoxins.

When he comes back he'll be joining the Department of Molecular and Cell Biology at the University of California-Berkeley. Zain was on the Dean's list for several quarters and was a member of the National Society of Collegiate Scholars. Zain worked for numerous quarters in the laboratory of Dr. Andreas Mastouschek in the BMBCB Department studying protein unfolding fluctuations and catalyzed unfolding by the proteasome.



**Geoffrey Horner** (EC98) graduated with degrees in ISP and Biochemistry. Geoff worked for several quarters in the laboratory of Dr. William Klein. He studied the biochemical purification/analysis of the CNS protein receptor of a newly discovered molecule that could be the toxin that causes Alzheimer's disease. This summer and next year Geoff will be working for the National Institute of Environmental Health Sciences in Raleigh/Durham NC in a molecular epidemiology lab studying tumor suppressor genes. He is tentatively planning to go graduate school in biochemistry the year after.

**Viviana Oliva** (EC98) earned degrees in ISP and Biological Science. She conducted research in the laboratory of Professor Douglas Engel (BMBCB)

where she worked on a transcription factor in mice called GATA-3. Viviana was a member of the Delta Gamma sorority and competed in the Chicago Marathon twice! She is planning on attending a graduate program in genetic counseling.

**Petra Pancoskova** (EC98) majored in ISP, Environmental Science, and Geological Science. Petra was the winner of the 2001 Horace A. Scott Award for Geology and the 2001 Seymour Schlanger Undergraduate Earth Science Award. Petra plans on continuing her graduate studies in Geological Science next year at NU with Dr. Brad Sageman.

**Kathleen Ratcliff** (EC98) graduated with degrees in ISP, Biochemistry/Biophysics, Physics, and Math. She worked for a several quarters in the lab of Dr. Ishwar Radhakrishnan studying protein structures. In addition to her studies, Kath played on the Northwestern Ultimate Frisbee Team. She will attend graduate school at UC Berkeley where she will study Biophysics.

**Adam Sefkow** (EC98) graduated with majors in Physics (with honors), ISP, and Mathematics and a minor in Russian. He has conducted physics research at Dartmouth, MIT, Northwestern, and two U.S. Department of Energy labs, the Princeton Plasma Physics Laboratory and the Lawrence Livermore National Laboratory. Adam has received honors from Congress and the U.S. D.o.E., has been elected a member of Sigma Pi Sigma (the National Physics Honor Society), and has several publications to his credit. He plans to study plasma physics at Princeton this fall. Adam's future goals are to help make nuclear fusion energy a reality and to join arms control and nonproliferation efforts.

# Our Remarkable 2002 Graduates

**Myra Sutanto** (EC98) earned degrees in ISP and Biological Science this spring. Myra worked for many quarters in the lab of Dr. Linda Hicke where she studied the proteins that interact with the ubiquitinated cell-surface receptor Ste2p to elucidate the endocytic and sorting pathways of ubiquitin-dependent internalization by the yeast two-hybrid method. Myra was awarded a Pfizer Summer Undergraduate Research Fellowship and an Erwin Macey Scholarship in the life sciences. Myra was also the Poetry editor for the Helicon Literary Magazine during her time at Northwestern. Myra plans on continuing her graduate studies at MIT in the Biology Department.

**Steven Tran** (EC98) graduated with a degree in ISP. Steven worked in the Chemistry lab of Dr. Richard Silverman where he researched the effects of Primary Hyperoxaluria Type I with the intent to develop a viable cure. He also worked in the lab of Dr. David Channin where he helped develop client server software supporting services used to access Northwestern Memorial Hospital's picture archiving service. Steven plans to attend medical school.

**Jennifer Vomaska** (EC98) graduated with degrees in ISP and Biological Science. Jen worked with Dr. Robert Lamb of the Howard Hughes Medical Institute as an undergraduate researcher for close to two years. Her work focused on studying the virus families Orthomyxoviridae and Paramyxoviridae, as well as the Hemagglutinin Neuraminidase protein of Simian Virus 5. Jen will be joining the Peace Corps and traveling to Africa to work with a health project related to the HIV/AIDS epidemic there.

**Christopher Warren** (EC98) earned degrees in ISP and Biological Science. Chris will attend the University of Wisconsin-Madison where he will study Biochemistry. Chris completed several

quarters of research in the lab of Dr. Richard Morimoto where he investigated the heat shock transcription factors in the *C. elegans* organism. Chris was also granted a bioinformatics grant last summer that he used to support his research.



**Matthew Williams** (EC98) graduated with degrees in ISP and Geological Science. He conducted research with Geological Science Professor Brad Sageman from June 2000 to June 2002. His work focused on the analysis of organic carbon accumulation across a bulk sedimentation gradient. Matt was also the founder of "Lovers and Madmen", Northwestern's Shakespearean performance group. He will be attending Ohio State to study geological science.



*Adam Adler (EC00) hard at work in Dr. Linda Hicke's laboratory.*

## Thanks to our Donors

Special thanks to all of our donors over the last year: David Aaronson, Josh Amato, Nathaniel Brese, Mark Bollman, Todd Borro, Kevin Curran, Ted Carniol, David Darwin, Andrew Duchon, Craig Fithian, Johnathan Gelman,

Brian Herzing, Randal Hoke, Joseph Hora, Kent Jeffreys, Jessica Jenkins, Barbara Kandelman, Philip Kaldon, Rebecca Levin-Goodman, Nancy Levinger, Richard Magahiz, Robert Maki, Nancy Marmon, Susan McMonigal, Jeffrey Miner, Mark Muldoon, Cheryl Pauli, Marcus Rafiee, Bradford Sandor, Howard Schwartz, Paul Seo, Thalia Silverman, Christopher Vargas, Sara Walters, Scott Werfel, and as always a big thanks to Tim Krauskopf for his continuing support!

Remember, if you make a gift to NU, write ISP on the comment line of the check, to make sure it goes to the Integrated Science Program. Also, many companies have matching programs for gifts. This could effectively double or triple the amount that you give. Ask in your human resources department for information on how to do this.

# Alumni News

We didn't hear from many of our alumni this year. What happened everyone!!! As the years go by and alums finish grad school or change jobs and move away, we lose touch with many people. Please drop us a note at [info@isp.northwestern.edu](mailto:info@isp.northwestern.edu) or write us at ISP, 616 Noyes Street, Evanston, IL 60208 if you will be changing addresses. We also love to hear about your career and personal accomplishments. Keep in touch!

**Craig Bina** (EC80) was named the first Wayne V. Jones II Professor of Geology. Since our last newsletter, Craig has also become Associate Dean for Undergraduate Studies and Advising in the Weinberg College of Arts and Sciences.

We heard from **Tim Klitz** (EC87) and **Jane Caldwell** (EC88) Jane is teaching middle school life science and physical science at a girls' school in Pittsburgh (Ellis School). Tim is an Assistant Professor of Psychology at Washington & Jefferson College Washington, PA. They have purchased a house for the first time, and spent last summer avoiding preparing for classes and working on the house instead!

**Dennis Ma** (EC94) let us know that he graduated from Cornell Law School and has joined a patent litigation firm here in Chicago.

**Stephanie Wang** (EC 98) is currently a first year graduate student in the Department of Molecular and Cellular Biology at Harvard. She is doing her first rotation in Greg Verdine's lab in the Department of Chemistry and Chemical Biology, working on a joint project between his lab and a cell biology lab involving 8-oxoguanine DNA glycosylase and "in vivo" studies (with *Xenopus* extracts) of the oxo-G DNA repair mechanism.

**Dave Rader** (EC92) sent us this: "After graduating from ISP and Econ in '96, I went into management/consulting.



Goldwater Winner Nate Gouwen (EC99) in the lab.

I worked in the Evanston area for a couple of years as a data analyst, having fun with predictive modeling and optimization, before moving in to software development. While working in Evanston, I met my (future) wife on a rock-climbing trip with the NU Outing Club. After she graduated from McCormick in '98, we moved back to NJ, where I joined a technology consulting company, Fusion Technologies. I'm now a partner, helping the company grow from a small, bright, dynamic group to a world-class (offices in Amsterdam and India) provider of software services. We're a growing, 60-person company specializing in all the IT buzzwords, like e-commerce, application integration, and web services. My wife and I wed two summers ago (2000), and just bought a house in Metuchen, NJ (biking distance to work!). Kids are not yet on the horizon, but dogs might be."

**David Darwin** (EC79) sent us a note to let us know that he would be moving to Chicago and to become VP of Marketing at Avatar, a small firm that specializes in oil based products.

**Mark Kobrak** (EC88) let us know about his recent move to New York

City where he is now a faculty member at Brooklyn College of the City University of New York. We would like to congratulate Mark and his wife, Marcy, on the birth of their son last December.

Visit our Website at  
[www.isp.northwestern.edu](http://www.isp.northwestern.edu)

## · NORTHWESTERN UNIVERSITY ·

Integrated Science Program  
616 Noyes  
Evanston, IL 60208

Phone: 847/491-7219  
Fax: 847/491-7002  
E-mail: [info@isp.northwestern.edu](mailto:info@isp.northwestern.edu)

**William Halperin, ISP Director**  
**Steven Daut, ISP Program Assistant**

## Calling all ISP ALUMNI!

We want to hear from you! Call, write, or e-mail about what you've been doing since graduation. Let your fellow ISP'ers hear about your new jobs, exciting research, marriages, babies, etc. We'll print all your news in our newsletter.