

# Student Celebration

~ honoring our students and their accomplishments ~

May 14th  
2004

## John Cardy Award

*In honor of John Cardy, a former Professor of Physics at the University of California, Santa Barbara. Awarded to a first year graduate student with the strongest performance in the core first-year graduate courses.*

### **Nathaniel P. Stern**

Nate received his bachelor's degree from Harvey Mudd College, and is currently a first year graduate student working with Professor David Awschalom in the areas of solid state spintronics and quantum information processing. He is exploring the fundamental interactions between electron and nuclear spins in semiconductor nanostructures with the intent of electrically manipulating quantum information at the atomic level.

## Outstanding Teaching Assistant Award

*For exceptional performance as a Teaching Assistant, exhibiting responsibility and leadership.*

### **Tikhon M. Bernstam**

Tikhon received this award for his excellent teaching abilities and outstanding display of leadership as the lead TA for the Physics 6 series. Tikhon is responsible for developing special lectures and demonstrations for use in the 6 series, and maintains consistently excellent TA evaluations.

## Ferrando-Fithian Fellowship

*Awarded to women who show strong potential for development as scholars and research scientists in physics.*

### **Colleen Schwartz**

We are proud to award this honor to Colleen Schwartz. Colleen is a 5<sup>th</sup> year graduate student who, throughout her time at UCSB, has made numerous contributions to community outreach efforts and the encouragement of women in physics, including personal efforts toward the recruitment of women to our graduate program. Colleen works with Professor Crystal Martin in experimental astrophysics, and continues to demonstrate excellent scholastic and research achievements in the Department of Physics.

## Wheelon Fellowship

*Awarded to incoming graduate students who have demonstrated outstanding scholastic achievement.*

### **Shawn Hampton Pfeil**

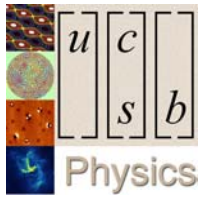
Shawn was awarded the Wheelon Fellowship in recognition of his outstanding scholastic record at the University of California, San Diego, and his continued excellent performance as a first year graduate student. Shawn spent his first year at UCSB as the TA responsible for coordinating Physics Circus. This summer, he will begin research with Professor Everett Lipman on optical techniques for studying single biological molecules.

## Physics Circus Awards

*Awarded in honor of outstanding and dedicated service to the Physics Circus.*

**Eric Michael Brown  
Benjamin John Callahan  
Matthew Frederick Doty  
Eric Jason Luckwald  
Mary Elizabeth Manning  
Christopher Michael McKenney  
Shawn Hampton Pfeil**

**Jennifer Lynn Ross  
Christian Donato Santangelo  
Colleen Schwartz  
Emily Frances Sistrunk  
Heather Anne Walling  
Jing Xu**



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## *The Chair's Certificate of Appreciation - Graduate and Undergraduate Recipients*

*Given in honor of outstanding service to the Department of Physics.*

### **Scott Thomas Fraser - Graduate Student Recipient**

Scott's thesis research is in gravitation theory, on the theory of extra dimensions. Up to now, experiments only show three dimensions of space and one dimension of time. However, string theory demands there must be more dimensions, perhaps very small in size. Scott is studying the properties of tiny black holes that might exist in these extra dimensions.

Scott has also provided excellent TA support for the graduate and undergraduate relativity courses, as well as graduate mechanics. This year, as the Head Teaching Assistant, he has shown exceptional initiative and leadership among his peers.

When he is not working on his PhD thesis, Scott also enjoys teaching. He has taught General Physics during UCSB's Summer Sessions 2002, and Concepts of Physics during UCSB's Summer Sessions 2003.

### **Cynthia Cabides Bermudez - Undergraduate Student Recipient**

Cynthia Bermudez is a senior in Physics, on her way to graduating with a BS. She has been the Society of Physics Students President since the Spring 2004 quarter, and has already coordinated field trips, quarterly meetings, Pre-Colloquium meetings for undergraduate students, and more.

### **Andrew Marshall Prindle - Undergraduate Student Recipient**

Andrew Prindle received a B.S. with highest honors in Physics from the University of California at Santa Barbara in the Winter 2004. He is currently working as an analyst in the Municipal Finance department of Goldman Sachs & Co. in San Francisco, after which he plans to attend business school. He served as the Society of Physics Students President during the Fall 2003 and Winter 2004 quarters.

## *Arnold Nordsieck Award*

*In memory of Arnold Nordsieck, who was a theoretical physicist at General Research Corporation of Santa Barbara. Awarded to a graduating senior in physics who shows research promise, as selected by the faculty.*

### **John Robert Royer**

John worked with Professor Guenter Ahlers' group studying pattern formation in Rayleigh Benard Convection. He will attend the University of Chicago for graduate school. He is in the process of finalizing an Undergraduate Senior Thesis, and will be graduating with honors from both the College of Creative Studies, and Letters and Science with a BS in Physics.

## *Outstanding Senior Award*

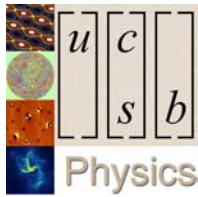
*Awarded for excellent academic performance and evidence of future promise in physics.*

### **Michelle Nicole Lemaster**

Nicole is currently working with the Lubin Group on the development of theoretical and numerical modeling of THz filters. She will be starting as a graduate student in the Astrophysical Sciences department at Princeton in Fall 2004.

### **Patrick Ross O'Neill**

Patrick is currently working on a research collaboration between Professors Dirk Bouwmeester and Deborah Fygenon in the Physics Department, trying to apply optical properties of colloidal quantum dots to study energy transport in microtubules. He will be attending graduate school here at UCSB in Fall 2004.



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## Physics Research Honors

*Awarded for outstanding effort in laboratory research.*

### **Dale Michael Ando** - Phil Lubin

Dale worked on the Transient Optical Sky Survey project to be sited at the White Mountain Observatory.

### **Joseph David Bergesen** - Phil Lubin

Joseph worked on a system to study atmospheric stability on the millimeter wavelength range for use at the White Mountain Millimeter Wave Observatory.

### **David Lewis Boortz** - Phil Lubin

David worked on computer control of a metal on thin polymer system as well as coding a DSP data acquisition system.

### **Khodadad Nima Dinyari** - Dirk Bouwmeester

Nima worked on a setup to test the optical quality of a tiny mirror (about 15 micrometers in diameter) that is attached to a small cantilever. He built an optical cavity using this tiny mirror and adopted the cavity for operation in an ultra high vacuum system.

### **Blake William Erickson** - Phil Lubin

Blake worked on an automated enclosure for a White Mountain Automated Optical Telescope.

### **Rebekah Laurel Graham** - Phil Lubin

Rebekah worked on a system to study atmospheric stability at millimeter wavelengths.

### **Nicholas Grey Gravish** - Phil Lubin

Nick worked on a cryogenic bolometer readout timing system as well as a speed control system for a polymer film spinner.

### **James Clerk Lee** - Mark Sherwin

James has worked on building an apparatus for time-domain THz spectroscopy of photonic crystal structures.

### **Michelle Nicole Lemaster** - Phil Lubin

Nicole designed a numerical algorithm for simulating and predicting performance of resonant metal mesh THz filters. She worked on the photolithography production, bonding and testing of these filters. Additionally, she worked on the optical design of an off axis millimeter wavelength telescope.

### **Christopher Michael McGuinness** - Joe Incandela

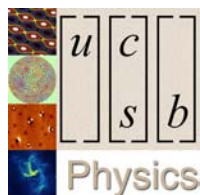
Chris designed, constructed, and commissioned a five-layer silicon microstrip detector to be used to track cosmic rays, and possibly test beam particles. Its main purpose is the study particle position resolution in silicon detectors about to be used in the CMS experiment at the CERN LHC accelerator in Geneva. It will also be used to study new designs for more radiation tolerant detectors.

### **Mika Erin Isabel McKinnon** - Phil Lubin

Mika worked on thin film evaporation, as well as UV photolithography and diffusion bonding of THz filters.

### **Maiken Sophia Høgh Mikkelsen** – David Awschalom

Maiken has been working on the design and fabrication of molecular electronics for quantum information processing. In particular, she has been developing an electrical scheme for measuring the transport of electrons across molecular bridges between semiconductor quantum dots.



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## Physics Research Honors, Continued

**Patrick Ross O'Neill** - Deborah Fygenon and Dirk Bouwmeester

Patrick has worked on coupling biopolymers to colloidal quantum dots for optical characterization of possible energy transport mechanisms. He has also assembled an apparatus for microinjection and mechanical manipulation of biopolymer bundles under the microscope. This apparatus will help pattern the placement of dots along groups of polymers and enable experiments to clarify the dynamics of bundle formation.

**Martin Charles Olson** - Phil Lubin

Martin worked on a 0.3 Kelvin bolometric array receiver for use in millimeter wave observations.

**Elijah Langdon Quetin** - Phil Lubin

Elijah worked on all aspects of the Transient Optical Sky Survey experiment, which is an optical transient search system to be sited at the White Mountain Observatory.

**John Robert Royer** - Guenter Ahlers

John, in collaboration with Patrick O'Neill, obtained images of concentric convection rolls in a cell with a circular boundary. He carried out a quantitative analysis of the wave director of the pattern and determined the selected wave numbers. Away from the pattern center and from the wall, the measurements agreed well with theoretical predictions. For the selection, near the wall and the center theoretical predictions are still lacking. The work has been submitted for publication to Physical Review E.

**Solange Deniss Sanhueza** - Phil Lubin

Solange worked on the theory and design of a novel hydrogen compressor for use as a JT cryocooler to achieve 20 Kelvin for flight systems.

**Emily Frances Sistrunk** - Phil Lubin

Emily worked on the numerous thin film lithography projects including metal mesh THz filters and direct evaporation of superconducting-insulator-normal metal junctions.

**Christopher James Takacs** - David Cannell

Chris began helping Professor Cannell about 2 years ago with the design for an experiment to be flown by the European Space Agency in the FOTON satellite, October 2006. Chris has shown an astonishing capacity to grasp the overall design, contribute to all aspects of the work, and to supervise the efforts of a younger student.

## Physics Academic Honors

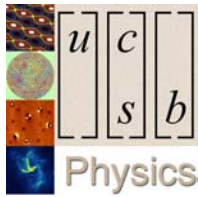
*Awarded to graduating students who maintain an Upper Division Physics GPA between 3.50 and 3.79, and who have completed at least 50 upper division units.*

**Dale Michael Ando, Blaise Dupart, Kenneth Craig Fowler II, Lea Marie Fredrickson, Orin Michael Harris, Tristan Orion Rocheleau, Stephen Joseph Sarkozy, Shigeto Watanabe.**

## Physics Highest Academic Honors

*Awarded to graduating students who maintain an Upper Division Physics GPA of 3.80 and higher and who have completed at least 50 upper division units.*

**Khodadad Nima Dinyari, Michelle Nicole Lemaster, Patrick Ross O'Neill, Andrew Marshall Prindle, Elijah Langdon Quetin, John Robert Royer, Michael Evan Schwimer, Akio Yanagawa.**



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## Other Awards and Recognitions

### *The Seismological Society of America Meeting, Best Student Presentation Awards*

**Morgan Temple Page** gave a poster presentation and **Eric Michael Dunham** gave an oral presentation during the April 2004 meeting. Each won the best student presentation award for their work on Earthquake Physics in the Jean Carlson lab. More information on their work can be found at <http://www.physics.ucsb.edu/~complex/research/quakes.htm>

The award is given in recognition of outstanding work by SSA student members. The awards are given for an excellent poster presentation or talk at Annual Meetings, beginning in 2004. The award may be given to 0-15% of the presenting students at the meeting, based upon an absolute standard of excellence and criteria developed by the Honors Committee. All student presenters will be considered eligible for the award. Names and photos of the awardees and their presentation titles will be published in Seismological Research Letters and posted on the SSA Web site. A letter announcing the awarding of the honor will be sent to the chair of the each winning student's academic department.

Excerpt borrowed from <http://www.seismosoc.org/news/newSSAawards.html>

### *Hertz Foundation Fellowship*

**Nathaniel P. Stern** was awarded a Hertz Foundation Fellowship. The Fannie and John Hertz Foundation funds 25 merit-based Fellowships to pursue graduate study towards a PhD degree in applications of the physical sciences, ranging from electrical engineering to molecular biomedicine, at one of the Foundation's tenable schools. The Directors believe that the intent of the founders is most effectively accomplished by fostering the postgraduate studies of excellent young men and women who exhibit high native intelligence, excellent retention of an outstanding basic technical education, orientation and commitment to the applications of the physical sciences, extraordinary accomplishment in technical or related professional studies or research endeavors, features of temperament and character conducive to high technical professional attainment, and appropriate moral and ethical values. It is the Foundation's hope that the stipend will allow Hertz Fellows to exercise intellectual independence early in their graduate careers.

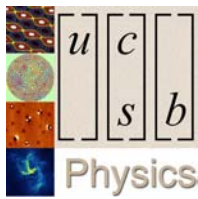
### *Undergraduate Research and Creative Activities*

*The following physics undergraduates received funding from the URCA Office during the 2003-04 academic year for their individual research projects:*

**Michelle Nicole Lemaster** (mentor: Philip Lubin)  
**Gustavo Gabriel Litvin** (mentor: Robert Geller)  
**Nicholas Grey Gravish** (mentor: Philip Lubin)

### *Undergraduate Senior Thesis*

**Lea Marie Fredrickson**, Fall 2003  
**John Robert Royer**, Winter 2004  
**Christopher Michael McGuinness**, Summer 2004



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## Graduating Students 2003-2004

### Undergraduate Students

#### Fall 2003

Matthew John Crossley, *BS*  
Lea Marie Fredrickson, *BS*  
Vahe Keshishian, *BA*

#### Winter 2004

Brian William Appleby, *BS*  
Jared Devin Dietch, *BS*  
John Charters McCorkindale, *BS*  
Jared Ray Sjoberg, *BS*

#### Spring 2004

Tamim Ahmad, *BS*  
Kevin O'Neill Beer, *BS*  
Joseph David Bergesen, *BS*  
Khodadad Nima Dinyari, *BS*  
Blaise Dupart, *CRTST BS*  
Jonathan Joseph Ecker, *BS*  
Nicholas Jay Forinash, *BS*  
Kenneth Craig Fowler II, *CRTST BS*  
Gregory Benjamin Franks, *BS*  
Matthew A. Keye, *BS*  
Alexandra Carley Kopecky, *CRTST BA*  
Brian Gabriel Lang, *BA*  
Michelle Nicole Lemaster, *CRTST BS*  
Lee Michael Murray, *CRTST BS*  
Patrick Ross O'Neill, *CRTST BS*  
Andrew Marshall Prindle, *BS*  
Daniel P. Richelieu, *BA*  
John Robert Royer, *CRTST BS*  
Stephen Joseph Sarkozy, *CRTST BS*  
Michael Evan Schwimer, *CRTST BS*  
Richard Andre Sorenson, *BA*  
Shigeto Watanabe, *BS*  
Sheridan Henryk Zalewski, *CRTST BS*

#### Summer 2004

Sean Madsen Alexander, *BA*  
Jason Robert Fucik, *CRTST BS*  
Joshua David Pollett, *CRTST BS*  
Akio Yanagawa, *BS*

### Graduate Students

Alfredo Alexander-Katz - *PhD*  
Viorica-Cristina Bena - *PhD*  
Samuel George Carter - *PhD*  
Ryan Matthew Case - *PhD*  
Jeffery Dale Childers - *PhD*  
Christopher John Deloye - *PhD*  
Matthew Frederick Doty - *PhD*  
Theodore Schuyler Kisner - *PhD*  
Matthew Stuart Lippert - *PhD*  
Michael Alan Mazur - *PhD*  
Dirk Pandel - *PhD*  
Deena Minu Patel - *PhD*  
Blake Alexander Purnell - *PhD*  
Jennifer Lynn Ross - *PhD*  
Christian Donato Santangelo - *PhD*  
Aristotle Socrates - *PhD*  
Dean Martin Townsley - *PhD*  
Brookie Phipps Williams - *PhD*  
Xiaochao Xu - *PhD*

**Congratulations  
2003-2004  
Physics Graduates!**

CRTST = College of Creative Studies Students

Students who have not declared candidacy by May 12, 2004 do not appear on this list.