

DEPARTMENT OF PHYSICS AND ASTRONOMY NEWSLETTER

Fall Semester

State University of New York, Stony Brook

September 1998

Stony Brook Participates in BNL Management Team

As of March 1st of this year Stony Brook is a partner in a new corporation formed to operate Brookhaven National Laboratory for the Department of Energy (DOE). The corporation, called Brookhaven Science Associates, has as the other partner Battelle Memorial Institute, a not-for-profit company with about 7000 employees which specializes in developing and commercializing technology. Battelle also operates Pacific Northwest National Laboratory for the DOE. Six universities (Columbia, Cornell, Harvard, MIT, Princeton and Yale) with important interests in BNL have seats on BSA's Board of Directors and on its science and technology oversight committee for the Lab.

BNL is one of the nation's premier, some would say *the premier*, multi-purpose national labs with a glorious record of science accomplishments. Work which led to four Nobel prizes has been done there. It has about 4000 users each year of its facilities including the AGS, the NSLS, the HFBR, the Protein Data Bank, and several state-of-the-art imaging devices.

There was a huge amount of activity on campus during August 1997 when all parties came together to get the plan and proposal together with as many as fifty people working to get the job done. **Bob McGrath**, who had been working on the project as Deputy Provost since the beginning, was joined by **Peter Paul**, **Janos Kirz**, **Michael Marx**, and **Peter Stephens**... all of whom have very strong connections to BNL. Paul agreed to be BNL Deputy Director for Science and Technology if the proposal succeeded. **John Marburger** who later joined the project as BNL Director-designee was critical to building the winning proposal.

For almost a year BNL had been existing under confusion created first by a much-publicized tritium plume

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Faculty Awards and News- worthy Accomplishments

The past year brought much welcome recognition to our faculty and the university:

Prof. Igor Aleiner received an A. P. Sloan Research Fellowship.

Adjunct Prof. Marvin Geller has been appointed Dean of the Marine Science Research Center.

Prof. Paul Grannis was named SUNY Distinguished Professor. He also received the DOE Exceptional Service Award, and was named Man of the Year in Science by the Village Times.

Prof. Jainendra Jain was elected Fellow of the American Physical Society.

Prof. Chang Kee Jung is a senior member of the Super Kamiokande collaboration. The experiment conducted by this group received a great deal of media attention on the announcement that they found strong evidence for non-zero neutrino mass. Chang Kee also received a Center of Excellence Award from the University of Tokyo.

Prof. Kostya Likharev was elected Fellow of the American Physical Society, and Honorary Member of the Russian Meteorological Academy. He was also selected the Outstanding Teacher by the graduating class.

Prof. John Marburger was named Director of Brookhaven National Laboratory.

Prof. Robert McCarthy was elected Fellow of the American Physical Society.

Prof. Robert McGrath was named Vice President of the University for Brookhaven National Lab.

Prof. Emilo Mendez received the Principe de Asturias Prize for Science and Technology, the highest award in Spain for intellectual accomplishment. Earlier he was made Commendador of the Order of Civil Merit, and, on the nomination of the pre-med students, was inducted as Honorary Member of the Alpha Epsilon Delta Premedical Honor Society.

Prof. Harold Metcalf's work in collaboration with W. Phillips was honored by the Nobel Prize in Physics - to W. Phillips. Hal was invited to travel to Stockholm to participate in the ceremonies.

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43 New Graduate Students Start Their Study This Year

It is a pleasure to welcome the incoming class of graduate students to the Department of Physics and Astronomy. We look forward to meeting you and helping you settle into classes, offices, housing, friendship, and professional contacts. We are delighted that you have elected to come to Stony Brook from 37 different universities in 19 countries, and that eight women are in your group. The students, staff and faculty stand ready to help you join our community of physicists and astronomers.

Name	Degree Sought	Prior University	Country
Lilia Anguelova	Ph.D.	Sofia University	Bulgaria
Carlos Avila	Ph.D.	SUSB, Fla Intl University	Cuba
Tobias Beetz	MA	University Wurzburg	Germany
Carola Berger	Ph.D.	University Graz	Austria
Tirthabir Biswas	Ph.D.	IIT Kampur	India
Todd Bojanowski	Ph.D.	Canisius College	US
Tulika Bose	Ph.D.	Cambridge University	India
Javier Cardona	Ph.D.	University Nacional	Colombia
Yiing-Rei Chen	Ph.D.	Natl Taiwan University	ROC
Tassilo Christ	MA	University Wurzburg	Germany
Chen-Ling Chung	Ph.D.	Tsinghua University	ROC
Nathan Clisby	Ph.D.	Flinders University	Australia
Philip Colosimo	Ph.D.	University Michigan	US
Lily Copenagle	Ph.D.	Hampshire College	US
Olindo Corradini	Ph.D.	University Modena	Italy
George Danilov	Ph.D.	Moscow Inst	Russia
Jerry Francischelli	Ph.D.	Queens College, CUNY	US
Antonio Garcia-Garcia	Ph.D.	University Madrid	Spain
Loic Grandchamp-Desraux	Ph.D.	Ecole Normale	France
Michael Hofmann	MA	University Wurzburg	Germany
Alberto Iglesias	Ph.D.	University Buenos Aires	Argentina
Anna Karelina	Ph.D.	Moscow State	Russia
Bertram Klein	Ph.D.	SUSB, Wurzburg	Germany
Hubert Kluepfel	MA	University Wurzburg	Germany
Tibor Kucs	Ph.D.	Charles University	Czech Rep
Jean Dominique Laenge	MA	University Tuebingen	Germany
Gerhard Lechsal	Ph.D.	University Heidelberg	Germany
Marc McClure	Ph.D.	University PA & Rutgers	US
Anuj Purwar	Ph.D.	University Delhi	India
Kristian Rabenstein	Ph.D.	University of Illinois	Croatia
Kenneth Sadowsky	MAT	Rutgers	US
Yolanda Saiz-Poveda	Ph.D.	University of Madrid	Spain
Gail Schaefer	Ph.D.	SUNY @ Binghamton	US
Kevin Schultz	Ph.D.	Loyola University	US
Achim Schwenk	MA	Ruprecht-Karls-Univ	Germany
David Shapiro	Ph.D.	Colgate University	US
Woon Song	Ph.D.	Seoul Natl University	Korea
Rui Sousa	Ph.D.	Inst. Superior Tecnico	Portugal
Constantin Vaman	Ph.D.	University Romania	Romania
Stefano Venturini	Ph.D.	University di Milano	Italy
Juhao Wu	Ph.D.	Northeastern Univ	PRC
Renat Yakupov	Ph.D.	MIPT	Russia
Gabor Zala	Ph.D.	ELTE	Hungary
Konstantinos Zoubos	Ph.D.	Univ Paras,Imperial Col	Greece

Graduate Student Honors and Awards

This year, Physics & Astronomy graduate students received three of the six Presidential Awards to Distinguished Doctoral Students. **Sanjay Reddy** was honored for his thesis, “Neutrinos from Protoneutron Stars: Probing Hot and Dense Matter,” supervised by Professor **Madappa Prakash**. “Laser Spectroscopy and Lifetime Measurements on Trapped Francium” was the topic of **John Simsarian’s** thesis, supervised by Professor **Luis Orozco**. **Shan-Ho Tsai** (who had previously received the Department’s David Fox Prize for Outstanding Teaching Assistant) wrote a thesis, supervised by Professor **Robert Shrock**, “Studies of the Ground State Entropy of the Potts Antiferromagnet.” Students in our department have received twelve of the 42 Distinguished Doctoral awards in the eight years since their inception. Brookhaven Women in Science presented their Gertrude S. Goldhaber Prize in Physics to two of our students: **Mary Jo Bellanca** and **Shan-Ho Tsai**.

The Department’s David Fox Prize for Outstanding Teaching Assistant was given to **Jane Burward-Hoy**. **Filipe Moura** received the T. Alexander Pond Prize for his outstanding performance on the Department’s qualifying examination. Peter B. Kahn Travel Fellowships were awarded to **Francisco Gonzalez-Rey** and **Lynn Matthews** to permit them to attend conferences. I am sure that there are more awards to our graduate students which have escaped my attention or memory – apologies to anyone who may have been slighted.

-Peter Stephens

Chairman’s Colloquium

**Tuesday, September 8
4:00pm**

Followed by the traditional Colloquium Feast provided by the Department Staff

Stony Brook Service Awards

Congratulations to the members of the department who received recognition for their service on campus:

40 years: **Al Hilz, Richard Mould**

30 years: **Alfred Goldhaber, Erle Graf,
Barry McCoy, Peter Paul,
Jack Smith,**

Max Dresden

Max Dresden, the noted physicist, historian and sociologist of science, teacher and lecturer died in Stanford, California on October 29, 1997 at the age of 79.

At the time of his death, he was Visiting Scientist at the Stanford Linear Accelerator Center, Consulting Professor in the History of Science Program of Stanford University, and Professor Emeritus in the Department of Physics and the Institute for Theoretical Physics of the State University of New York, Stony Brook.

He was born in Amsterdam in 1918 and received his early education in physics in The Netherlands. He obtained his Ph.D. in physics from the University of Michigan in 1946. Following faculty and administrative positions at the University of Kansas, Northwestern University and the University of Iowa, he came to Stony Brook in 1964.

His warm, kind and energetic personality was tremendously appreciated by students, colleagues and friends.

New Faculty

During the past year four Assistant Professors joined us. We feel fortunate to have attracted such an outstanding group of young faculty.

Professor **Igor Aleiner** came in January from the NEC Research Institute. A condensed matter theorist, his work is primarily in the area of mesoscopic physics.

Professor **Axel Drees** arrived last December from the University of Heidelberg. He has been involved with relativistic heavy ion experiments at CERN, and on his arrival he joined the PHENIX experiment at RHIC.

Professor **John Hobbs** has made a transition from Fermilab to Stony Brook. He continues as a major participant in the D0 experiment.

Professor **Ralph Wijers**, a theoretical astrophysicist, arrived in June from Cambridge University. He has worked most recently on sources of gamma ray bursts.

And that's not all! Dr. **Aaron Evans**, an observational astronomer at Caltech specializing in radio to near IR studies of merging galaxies has accepted our offer and will join us as Assistant Professor next year.

Gertrude Scharff Goldhaber

Dr. Gertrude Scharff Goldhaber, long a guest scientist and collaborator with members of the Stony Brook Physics Department, died on February 2 at the age of 86. She was noted for many contributions, especially to the understanding of nuclear structure, but also including fission reactions and the identification of beta rays with electrons.

Dr. Goldhaber was born in Mannheim, Germany. In 1935 she received her doctoral degree at the University of Munich, going on to do research at Imperial College in London. Later, she researched and taught at the University of Illinois before becoming the first woman Ph.D. physicist hired at BNL, where she rose to senior scientist before retiring in 1977. She was among a small number of women physicists elected to the National Academy of Sciences. She held positions at Cornell University and Johns Hopkins University, and was an adviser and consultant to the National Research Council, NSF and many other scientific organizations.

She was active in science education at all levels, among many other things starting the Brookhaven Lectures for general audiences at BNL. She was instrumental in founding Brookhaven Women in Science, which offers a prize in her honor that several times has been awarded to Stony Brook women graduate students. In April, Stony Brook Women in Science commemorated her life and work during its annual ceremony. (The address for donations to the Gertrude Goldhaber prize fund is: BWIS, P.O. Box 183, Upton, NY 11973.

Meeting in the Year 2000 and Alumni News

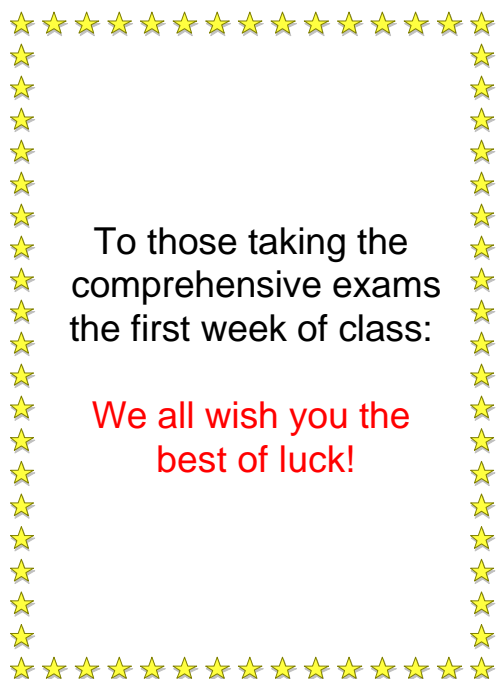
Staff News

Little Justin Vincent Napolitano, son of Vinny and Robyn and grandson of **Joan Napolitano** and her husband Vinny, was born on Friday June 26th, 1998. He weighed in at 8 lb. 3 oz. and was 21 inches long. Congratulations to this happy family!!

Maria Hofer joined the Physics and Astronomy Main Office Staff on June 11th. She has four children and four grandchildren and lives in St. James. Maria is a very talented and friendly individual and works in the afternoons. Please stop by and welcome her if you haven't already done so.

Retiring at the end of 1997 were: **Francine Schultz** from the Main Office, **Al Hilz** from the Electronic Shop, **Charles McKenna** from the Machine Shop and **Kitty Turpin** from ITP. Best wishes to all!

As you all know, the US weather has been particularly difficult this spring and summer for many people. Fires, floods, tornados and earthquakes have rocked the country. Unfortunately, several coworkers have suffered damage to their houses due to the recent heavy rains and thunderstorms that struck Long Island. **Ralph Ruf** and **Lorraine and Pete Davis** had significant damage to their homes and are currently replacing, rebuilding and repairing. We all hope you will join us in wishing them success in their efforts.



On June 19-21, in the year 2000, the Department of Physics and Astronomy will sponsor a Physics for the Next Millennium meeting for our Ph.D. alumni. Professor **Gerry Brown** has contacted alumni for whom we have addresses and will be sending more information about the meeting as time moves forward. We are sure that this joining together of Stony Brook scientists will be exciting as we know that our alumni hold a diverse collection of positions both in and outside physics.

The following alumni have recently contacted us, letting us know about their lives:

Moshe Gai: "After spending some 15 years at Yale University and climbing through the ranks to an Associate Professor, I moved to the University of Connecticut where I assumed the position of full professor of Physics and established the new Laboratory for Nuclear Science. I am primarily involved in research in Nuclear Astrophysics and the Solar Neutrino problem." Dr. Gai was recently elected as a Fellow of the American Physical Society; he also joined the UConn polo team (national champions in 1996 and 1997) and is proud to complete practice sessions, still seated on his horse.

Nancy Chesser: "I support, as a contractor, all of the Department of Defense Science & Technology programs in Directed Energy Weapons to ensure these efforts are coordinated and exchanging information routinely."

Eric Laenen: "I am a theoretical particle physicist at the Dutch National Institute for Nuclear & Particle Physics. I very much enjoyed my Stony Brook time and still enjoy going back on occasion."

Zhi-Yu Jiang: "I am finishing up a 3-year postdoc at SLAC working on SLD/SLC and am moving on to NASA Ames to work on super-computer R&D. I'm grateful to Stony Brook and wish her the best!"

Mauricio Fortes: "I was President of the Mexican Academy of Sciences 1994-95; President of the US/Mexico Foundation for Science since 1997 and am doing research at the Physics Institute, National University of Mexico."

Gerald Gwinner: "We have a pretty sizeable group of Stony Brook alumni here in Heidelberg and I was pleased to find out that the name 'Stony Brook' is well-known and respected here."

David Miller: "I had a sabbatical leave from Penn State for 1996-97, which I spent partly at the University of Beilefeld, Germany and 4 months on a Fulbright Scholarship at the University of Wroclaw in Poland."

Henry Glass: "I am project manager for permanent magnets for the Fermilab Recycler program. By the end of the summer we expect to have 350 gradient magnets ready for the new ring. I also supervise the magnet testing for the Main Injector, also nearing completion. I've learned enough about this business that I was asked to teach a one-week class on magnetic measurements at the US Particle Accelerator School in Austin this past January. Many more interesting projects await in the future."

Richard Rauch: "I'm currently working as a consultant to the Department of Defense in the areas of counter-proliferation; defending against nuclear, biological, and chemical weapons and National Missile Defense. It's a long way from gravitation theory but rewarding in its own way!"

Honorary Degree for Professor Alexander Pond

Prof. **T. Alexander Pond** was honored for his contributions to Physics and to Stony Brook by a Doctor of Science Degree, Honoris Causa at the May graduation ceremony. Prof. Pond was Chairman of the Physics Department during its formative years. He then served as Executive Vice President, and later as Acting President before leaving the University for Rutgers. Prof. Pond addressed the department graduating class as well as the general university ceremony. There was a dinner in his honor on this special occasion.

Undergraduate Activities

Our department supports research activities for many undergraduate physics majors from Stony Brook and other universities. During this past summer **Erle Graf** was in charge of the Research Experiences for Undergraduates grant. The research teams they worked with are:

Dawn Cavanaugh, Robert Conde, Evan Crocker, Jacob Taylor (Tom Hemmick, RHIC project).

Roberto Garza and Evan Levine (Bob McCarthy and Mike Rijssenbeek, HEP).

Avery Broderick and Dan Yelle (Madappa Prakash, astrophysics theory).

Shawn Pottorf (Laszlo Mihaly, solid state).

Raphael Schorr (Peter Koch, atomic).

Tim Stasevitch (Gene Sprouse, nuclear).

Anna Stewart (Hal Metcalf, lasers).

In addition, **Manuel de la Cruz Guitierrez** and **Pedro Quinto**, both from universities in Mexico, are working with **Luis Orozco** in atomic physics.

Under the Recognition Award for Integrating Research and Education, Stony Brook undergraduate **Alexandra Rockefeller** is working in **Hal Metcalf's** lab. Under the Undergraduate Research and Creative Activities program, Stony Brook undergraduate **Daniel Greenbaum** is working with **Luis Orozco**.

We have an active Society of Physics Students. Their faculty advisor has been **Tom Hemmick** and now will be John Hobbs. In May, there was an induction ceremony for Sigma Pi Sigma, the undergraduate physics honor society. The faculty advisor is Hal Metcalf. The new members are: **Avery Broderick, Keith Carney, Richard Gross, Altan Hakan, Mary Ifferte, Atif Imtiaz, Jack Lam** and **Eric Roman**. One of the less academic activities of the society is their participation in the annual Cardboard Boat Regatta in the raging sea of Roth Pond. This year our team came in second in a watery finish.

One of our physics majors was the 1997 New York State Chess Champion. **Alex Lehmann** will be a junior this year, and will defend his title in August. Another of our majors, **Daniel Greenbaum**, won a 1998 Chancellor's Award for Excellence. Four of our majors received 1998 Undergraduate Recognition Awards: **Daniel Greenbaum, Mary Ifferte, James Mascarelli** and **Chris Freigang**. Greenbaum also received a Goldwater scholarship.

Neutrinos Weigh!

At the Neutrino 98 conference held in Takayama, Japan, June 4-9, 1998, the Super-Kamiokande collaboration reported an evidence for massive neutrinos. A group of experimental particle physicists from Stony Brook, led by Professor **Chang Kee Jung**, is part of the US team in the collaboration which is composed of about 120 physicists including graduate students from 23 institutions from Japan and the US. Current Stony Brook collaborators include Professor **Chang Kee Jung, Sr. Research Scientist, Chiaki Yanagisawa, post-docs Jim Hill, Kai Martens, and Clark Mc Grew**; graduate students **Christopher Mauger, Eric Sharkey, and Brett Viren**; undergraduates **Tokufumi Kato, Melissa Powlowski, Toseef Raza, and Sung Yoon Yoon**.

The reported finding is a major discovery with a far-reaching impact in elementary particle physics, cosmology and astrophysics. The phenomenon of neutrino oscillation, which requires neutrinos to have non-zero mass, will alter our view of the world of elementary particles and the Standard Model, the currently prevailing theory of elementary particles. The finding will also make the theories of Grand Unification more viable and attractive and make the universe a lot heavier than we currently assume.

Telescope At BNL

The department will install a research grade 0.6 meter telescope at Brookhaven National Laboratory this year. The telescope is to be accessible through high speed data lines for faculty and graduate student research as well as a hands-on opportunity for undergraduate training and research. This installation follows a 5 year search for a home preceded by 20 years use at Mt. Hopkins, Arizona, about 50 miles south of Tucson where it had been operated and maintained by Stony Brook astronomers through a cooperative agreement with the Harvard-Smithsonian Center for Astrophysics.

Local fund-raising plus campus and BNL funding has resulted in almost procuring the necessary \$100,000 to guarantee that the erection of the dome and installation of the telescope will move forward toward the final stages of negotiation.

Deane Peterson and **Fred Walter** are spearheading the project from the department.

Fall 1998 Colloquium Schedule

The following is a preliminary schedule of the first half of the Fall Semester Colloquium presentations. This information can also be located on the Physics and Astronomy Web Page. Colloquia are held in Harriman Lecture Hall 137 at 4:15pm, preceded by coffee/tea at 3:45.

Date	Speaker	Title
September 8	Prof. Janos Kirz, Stony Brook	Chairman's Colloquium
September 15	Prof. Ralph Wijers, Stony Brook	Gamma-ray Bursts: New(s) Flashes
September 22	Rosh Hoshanah	No Colloquium
September 29	TBA	
October 6	Prof. Moses Chan, Penn. State Univer.	Casimir effect near the superfluid transition
October 13	Prof. Edward F. Redish, U of Maryland College Park	The Hidden Curriculum: What do we really want our students to learn?
October 20	Dr. William Phillips (Nobel Laureate, NIST) (Sir Run Run Shaw Lecture)	TBA
October 27	TBA	

(BNL continued from Page 1)

from the spent fuel pool of the HFBR, then by the termination of the AUI contract, and finally by the procurement process itself. Most people feel that things are now moving ahead since BSA has taken over. The Lab continues to do great science and there is more to look forward to. For example, last year the NSLS received high praise for its science productivity from the BESAC subpanel study of the nation's synchrotron x-ray facilities headed by R. Birgeneau, and RHIC is scheduled to begin operations in Summer 1999. There are initiatives in structural biology (especially on proteins) and in R&D work on a muon collider. The Lab is doing important construction for components of the Spallation Neutron Source, and is centrally involved in the LHC ATLAS detector.

Good progress is also being made in increasing the extent of Long Island community involvement with the Lab, and also in establishing constructive, partnering, relations with DOE in managing the Lab for a continuing bright future.

(Faculty Awards cont'd from Page 1)

Prof. Nieh retired to become Director of the Tsinghua University Center for Advanced Study in Beijing. Prof. **Luis Orozco** received a J. S. Guggenheim Fellowship. Prof. **Peter Paul** was named Deputy Director for Science and Technology at Brookhaven National Lab. Prof. **Jack Smith** received an Alexander von Humboldt Senior US Scientist Award. Prof. **C.N. Yang** was elected to Membership of the Pontifical Academy of Sciences, was named President of the Asia Pacific Center for Theoretical Physics, and received Honorary Degrees from Tsing Hua University and Chiao Tung University in Taiwan. Congratulations to all! (Apologies for any unintended omissions.)

NEWSLETTER:

Pam Burris, Editor

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Congratulations to the Newly Degreed Master's and PhD Students!

Student	Degree	Advisor	Thesis Topic
Carlos Avila	MSI	Metcalf	Narrowing and Frequency Stabilization of a DBR-Diode Laser
Kunegunda Belle	MA	Lanzetta	
Daniel Flees	Ph.D.	Lukens	Experimental Studies of Band-Structure Properties in Bloch Transistors
Francisco Gonzalez-Rey	Ph.D.	Rocek	Calculations in Quantum N = 2 Superspace
Stefan Grosskinsky	MA	Verbaarschot	Study of Neural Network Models of Brain Function
Miklos-Adam Halasz	Ph.D.	Verbaarschot	Applications of Random Matrix Theory in QCD
Christian Horn	MA	Stephens	Measurement of Raysplitting-Correction to Weyl-Formula in an Electromagnetic Cavity
Bertram Klein	MA	Verbaarschot	Universality In Chiral Random Matrix Theory
John Lewicki	MA		
Ilari Maasilta	Ph.D.	Goldman	Quantum Antidots in Quantum Hall Regime
Youri Matiounine	Ph.D.	Smith	Heavy Quark Production
Stephen Mielke	Ph.D.	Orozco	Intensity Correlations and Dynamical Processes in Cavity Quantum Electrodynamics
Sanjay Reddy	Ph.D.	Prakash	Neutrinos From Protoneutron Stars: A Probe of Hot and Dense Matter
Jeffrey Sears	Ph.D.	Fossan	Study of Collective Rotational Behavior in the Z = 52, 115, 116 Te, and Z = 54, 116, 118 Xe, Nuclides
Jesse Simsarian	Ph.D.	Orozco	Laser Spectroscopy and Lifetime Measurements on Trapped Francium
Marc Timme	MA	Sprouse	Studies of Spin Models in Statistical Mechanics
Shan-Ho Tsai	Ph.D.	Shrock	"Studies on the Ground State Entropy of the Potts Antiferromagnet
Yuxin Steve Wang	Ph.D.	Jacobsen	Three-Dimensional Imaging in Soft X-ray Microcopy
Fang Yang	MSI	Schamberger	

MSI and Optics: Graduate Opportunities

Two particular programs that the department offers to potential graduate students are the **Master's of Science in Instrumentation (MSI)** and the Ph.D. with a specialization in **Optical Science**.

The MSI program serves a small but important number of our graduate student population. Their highly specialized education in the field of instrumentation is of great importance to our department while they are here and to them when they graduate.

Admission to the program requires a Bachelor's degree in physical science or engineering with a background in quantum mechanics, nuclear and solid state physics. The curriculum is designed to meet the needs of students learning about the design, construction, testing, and operation of sophisticated instrument systems. The program features close faculty supervision in our modern labs that includes radio frequency, optical and microwave apparatus, automated measurement and control systems, microcircuit fabrication facilities, high power pulsed and CW lasers and more. Nearly all alumni of this program have enjoyed more than one job offer, many of which were the first choice of the student.

In the fall of 1995, the NSF awarded a grant of nearly \$600,000 to a consortium of faculty members in our department to support graduate research in the area of optical sciences. Each year since then, the department has admitted two Ph. D. students as Optics Fellows in this program.

One of the new features that was added to our department with the advent of this graduate program in optical sciences is the new course, PHY 582. This "Optics Rotation" provides the opportunity for the students to get to know the groups and the atmosphere of a research lab very early in their careers. Most students complete two semesters of the course, thus working in four different laboratories. The faculty members are Chris Jacobsen, Janos Kirz, Peter Koch, Hal Metcalf, Luis Orozco and Emilio Mendez.

We invite applications to both programs!

Activities for High School Students

Our department also takes part in many educational activities involving schools, both locally and throughout the nation. As usual, this past April we were host to the annual High School Physics Olympics, organized by the Long Island Physics Teachers' Association. Twenty-five schools sent teams of five students each to compete in contests that require physics training.

We also work with the high school physics teachers on Long Island in preparing an annual physics Challenge Exam for students. **Bob McCarthy** is the departmental liaison and helps make up the exam. Successful students are offered scholarships to Stony Brook. This year 30 schools and over 1500 students participated.

As usual, several of our faculty were mentors for high school students entering the Westinghouse Science Talent Search. Five of our students were among the 300 semi-finalists in the nation: **Shellun Wu** and **Timothy Chung**, mentored by **Cliff Swartz**; **Jonathan Arbeit**, mentored by **Tom Hemmick**; **Jamie Tong**, mentored by **Hal Metcalf**; and **Jonathon Kelner**, mentored by **Jac Verbaarschot**. In the summer of 1996, Kelner had worked with **Phil Allen** and co-authored a paper ("Evolution of a Vibrational Wavepacket on a Disordered Chain") that was published in the May 1998 issue of the *American Journal of Physics*. This year Kelner, working with Jac, was one of the finalists in the Westinghouse contest, receiving a \$10,000 scholarship.

This past summer there have been seven high school students working on Westinghouse projects: **James Napolitano** and **Tyler Kremberg** under the direction of **Phil Allen**; **Sandra Nudelman**, **Tina Shih**, **Edward Blumenstetter**, **Marvin Hidalgo** and **Jeff Baik** under the direction of **Hal Metcalf**. Shih, Blumenstetter and Nudelman have Simon fellowships. Working under the direction of Tom Hemmick are **Bill Zaiantz** and **Gabe Rosenberg**.

For twenty-seven years, our department has been host to the editorial offices of *The Physics Teacher* with Prof. **Clifford Swartz** as editor. About one-third of the subscribers to this monthly journal are high school physics teachers and the rest teach in colleges. Fifteen hundred subscribers are overseas. Most of the high school students in the United States who take a physics course are taught by subscribers to *TPT*.

This past August, **Joe Feliciano**, our laboratory support specialist, was invited to give a paper at a meeting in Munich, Germany about his pendulum apparatus. In most introductory courses, students measure the periods of pendulums as a function of string length. The period also depends on the local gravitational field strength, but everyone assumes that g cannot be changed experimentally. Joe's apparatus allows the effective g to be varied, and also permits precision measurements of period as a function of arc. Pictures of this apparatus and a descriptive article by Joe were featured on the cover of the January 1998 issue of *The Physics Teacher*.

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