

PROTON



PHYSICS REPORT ON THINGS OF NOTE

VOLUME 7 NUMBER 1

FACULTY NEWS

Nano Discovery

Source: CLAS News feature 'Head of the CLAS'



Associate Professor of Physics **Andrew Rinzler** has been awarded a patent for "Transparent Electrodes from Single Wall Carbon Nanotubes." In 2001,

while much of the nanoscale science community working with carbon nanotubes was focused on their applications as individual objects, Rinzler realized the material could provide important opportunities as a bulk material, while still taking advantage of the unique properties of its nanoscale constituents.

Rinzler made a proposal to the National Science Foundation for a new type of optical modulator based on a thin, optically transparent layer of carbon nanotubes, that was to be electrically contacted by an array of closely spaced, parallel gold electrodes. Since bulk carbon nanotubes contain both metallic and semiconducting nanotubes, Rinzler realized that a continuous film of them would be a good electrical conductor obviating the need for the gold electrode array.

Producing a film of nanotubes that would be thin enough to be transparent, optically homogeneous and still highly conducting proved to be quite a challenge. Rinzler's enabling ideas for a method that worked the first time it was tried by his graduate student **Zhihing Chen** came in 2002, shortly before the NSF funding came through. Recognizing that transparent electrical conductors are pervasive in modern electro-optics, including the need for such layers in present and upcoming computer/TV display technologies, Rinzler filed a disclosure with the Office of Technology Licensing, which filed for a provisional patent application in 2002, converting to a utility patent a year later.

See Rinzler on Page 4



Professor Mark Meisel

has been named the 2008 Colonel Allan R. and Margaret G. Crow Term Professor in the College of Liberal Arts and Sciences. These professorships recognize a select group of faculty who have demonstrated excellence in scholarship, teaching, and service. Congratulations to Mark on receiving this well-earned distinction!

Konigsberg re-elected as CDF co-spokesperson



Jacob Konigsberg will continue to help lead the CDF charge into the energy frontier in the quest to find the Higgs boson. The roughly 600-member collaboration of 14 countries elected Konigsberg as one of two spokespersons over three other candidates. The two leadership positions

have staggered two-year terms. This is the University of Florida professor's second term as spokesman. "CDF is very fortunate to have four very capable individuals interested in leading the experiment. This indicates how vibrant this collaboration still is," said **Robert Roser**, who has served as co-spokesman for the past year. "Jaco and I make a strong team, and I am sure we will have a lot of fun together in the coming year."

Source of story and picture: *Fermilab Today*
To read full article please visit:
<http://www.fnal.gov/pub/today>



Spring 2008 SEMINAR Schedule

Astrophysics
Fridays @ 4:00pm in Room 2165 NPB

Condensed Matter Physics
Mondays @ 4:05pm in Room 2165 NPB

Physics Colloquium
Thursdays @ 4:05 in Room 1002 NPB

High Energy Physics
Tuesdays @ 2:00pm and Fridays @ 2:00pm in Room 2165 NPB

Quantum Theory
Wednesdays @ 4:05pm in Room 2205 NPB

EDITORS

Alan Dorsey, Chair
Pam Marlin



college of liberal arts & sciences

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The Foundation for The Gator Nation



Research News

AMERICAN INSTITUTE OF PHYSICS

Several research projects from the department were

featured in the American Institute of Physics top 10 physics stories for 2007. Please visit <http://aip.org/pnu/2007/split/850-1.html> for the complete list.

Number six, which includes research done by Physics Assistant Professor, **Heather Ray**, is the The MiniBooNE experiment at Fermilab. The MiniBooNE experiment solves a neutrino mystery, apparently dismissing the possibility of a fourth species of neutrino.

For more information on the project visit <http://www.aip.org/pnu/2007/split/820-1.html>.

Number seven on the list is the Tevatron, which includes research done by Physics Scientist, **Jacobo Konigsberg**. The Tevatron, in its quest to observe the Higgs boson, updated the top quark mass and observed several new types of collision events, such as those in which only a single top quark is made, and those in which a W and Z boson or two Z bosons are made simultaneously. For more information visit <http://www.aip.org/pnu/2007/split/821-1.html>

UPCOMING SEMINARS

FOR TIMES PLEASE SEE PAGE 1

ASTROPHYSICS

JAN 11, PENGJIE ZHANG,
SHANGHAI ASTRONOMICAL OBSERVATORY

COLLOQUIUM

JAN 17, ANDREAS ALBRECHT, UC DAVIS
JAN 24, PETER GOLDREICH, PRINCETON
JAN 31, RAY ASHOORI, MIT

CONDENSED MATTER

JAN 7, VICTOR EFIMOV,
LANCASTER, CHERNOGOLOVKA
JAN 14, WONHO JHE,
SEOUL NATIONAL UNIVERSITY

HIGH ENERGY

JAN 15, ALEXEY DROZDETSKIY,
UF
JAN 18, ANDY ALBRECHT, UC DAVIS
JAN 22, TOMISLAV PROKOPEC,
UNIVERSITY OF UTRECHT

SEMINAR SCHEDULES ARE LISTED AT
<http://www.phys.ufl.edu/seminars>

STUDENT NEWS



There will be a Physics Graduate Student meeting Thursday, January 10 at 4:00pm in 1002 NPB. Please plan to attend.



Student Travel Awards Received

Three graduate students have received CLAS Graduate Student Travel Awards for Spring 2008.

The students are **Sinan Selcuk**, **Pradeep**

Bhupathi, and **Lex Kemper**, and the \$250 CLAS Awards for each student will be used to present abstracts at the APS March 2008 Meeting to be held in New Orleans. In addition to these awards, Sinan and Pradeep have both received \$250 Travel Awards from the Department.

Sinan Selcuk, a 6th year student working with **Professor Art Hebard**, will present an abstract entitled "Enhancement of Light Transmission through Bulls Eye Structures". **Pradeep Bhupathi**, a 6th year student working with **Professor Yoon Lee**, will present an abstract entitled "Effect of Global Anisotropy on Superfluid ^3He in Compressed Aerogels". **Lex Kemper**, a 4th year student working with **Professor Hai-Ping Cheng** and **Professor Peter Hirschfeld**, will present an abstract entitled "Impurity Studies in High-Tc Superconductors".

STAFF PARTY...



The Annual Secretary Staff holiday party was held December 13.

Above photo is of **Darlene Latimer**, Condensed Matter/MAG Lab Secretary



STUDENT EVENT AND AWARDS



Students Meet Faculty Event The Department's annual "Graduate Students Meet the Faculty" poster session event was held on Thursday, December 6th. It was an opportunity for students to present and discuss their current research. The student awards were also presented. More pictures of the event can be viewed at <http://www.phys.ufl.edu/media/2007-Meet-Faculty/> Photos of award recipients are below:

AWARD RECIPIENTS



Tom Scott Memorial Award

Naveen Margankunte

The Tom Scott Memorial Award is made annually to a senior graduate student in experimental physics who has shown distinction in research. The award honors the memory of Professor Tom Scott who made significant contributions to the Department both as a Chair and as a noted researcher and provides a \$500 prize.

Naveen Margankunte works with **Prof David Tanner**.

Photos are of Physics Chairman Alan Dorsey with award recipients



Charles F. Hooper Award

Deepak Kar (left) and Jonathan Lawrence (right)

The Charles F. Hooper Jr. Memorial Award is made annually to senior graduate students in physics who have shown distinction in research and teaching. The Award honors the memory of Professor Charles (Chuck) Hooper who made seminal contributions to the Department as a Chair, as a distinguished researcher, and as a beloved mentor/teacher and provides 2 Awards of \$250 each. **Deepak Kar** works with **Prof Rick Field** and **Jonathan Lawrence** works with **Prof Stephen Hill**.



Graduate Student Teaching Award

Francisco Rojas (left) and Manoj Srivastava (right)

Graduate Student Teaching Awards are awarded annually to two Teaching Assistants who have displayed excellence in teaching in either the laboratory or the discussion sections and the 2 Awards are each \$100.

TA of the Year (Labs) is **Francisco Rojas**, who is working with **Prof Charles Thorn** and TA of the Year (Discussion Sections) is **Manoj Srivastava**, who is working with **Prof Hai-Ping Cheng**.



Summer 2008 Undergraduate Opportunity in Japan

Rice University is pleased to announce the opening of the 2008 NanoJapan: Summer Nanotechnology Research Program for Undergraduates. Program dates are May 16 - August 8, 2008, with the application deadline being February 8, 2008. NanoJapan consists of a three-week Japanese language and culture orientation program held in Tokyo followed by a nine-week research internship at leading nanotechnology laboratories throughout Japan. Research host universities include Keio University, RIKEN, the University of Tokyo, Tokyo Institute of Technology, Osaka University, Osaka Institute of Technology, Shinshu University, Tohoku University and Hokkaido University. Participants will travel to Kyoto for a Mid-Program Meeting including a full-day Origin Japanese Traditional Arts Workshop. NanoJapan concludes with participants returning to Rice University to present scientific research posters on their summer projects at the Rice Quantum Institute Summer Research Symposium.

The NanoJapan program is open to freshmen and sophomore engineering and science students who are currently enrolled in good academic standing at any US institution of higher education. For more information visit <http://nanojapan.rice.edu>

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Rinzler's group further developed the films as well as the optical modulator that spawned them—and with characterization help from UF colleagues **David Tanner**, Physics; **Art Hebard**, Physics; and **John Reynolds**, Chemistry, published a paper in *Science* in 2004. That same year, in another demonstration of the utility of the films, Rinzler and materials science colleagues **Steve Pearton** and **Fan Ren** used them as the hole (positive electrical charge) injection electrode in gallium nitride light emitting diodes, with the light emitted through the films. This work was published in *Nano Letters*.

Today, with seven additional patents filed on various elaborations of the technology, the Rinzler and Reynolds groups have a well-funded program by the licensee of the patent to exploit the transparent conducting nanotube films in polymer based light emitting diodes, photovoltaics (solar cells) and electrochromic displays. Most recently, in another unrelated but also industrially funded program, the Rinzler group has pushed the technology to develop a new architecture thin film transistor.

SPICE Graduate Fellowships

SPICE is an NSF GK-12 program that provides \$30,000 fellowships to graduate students in science and engineering. It trains students to communicate science to the general public (through teaching in underprivileged middle schools) and to view more broadly their roles as scientists and engineers.

Although the focus of SPICE is ecosystem health, SPICE Fellows do not have to come from departments with an environmental focus. All they ask is an interest in framing lessons around environmental themes. For more details and applications, please visit the UF SPICE website: <http://www.spice.centers.ufl.edu>.

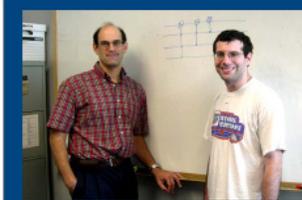
NSF is a funded program at UF and available to US citizen's or permanent resident aliens of the United States. Applications are due February 4, 2008.

SUMMER 2008 REU

University of Florida Physics Research Experience for Undergraduates (REU)

2008 Summer Program will offer...

- valuable research experience
- workshops on cutting-edge science and career choices
- tours of research facilities
- ten-week program from May 27 through July 31
- a \$4,500 stipend, paid housing and travel



Research opportunities in...

- Materials Physics
- Experimental Accelerator Physics
- Computer Modeling & Simulation



For more information...

Project descriptions and applications are online at www.phys.ufl.edu/reu

Questions?
Contact Prof Kevin Ingersent
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