

## Technology Marches On

The discovery in the 1980s of Nuclear Magnetic Resonance (NMR) or Magnetic Resonance Imaging (MRI) as it is better known today, revolutionized the medical application of X-Rays, enabling diagnostic images to be made of internal body parts without the harmful effects of x-rays. And MRI images are also much easier to read than x-rays. But thanks to the results of work at our National High Magnetic Field Laboratory, MRI has made a giant leap forward, employing 'nanomagnets' in the process of producing images that are rivaled by studio photography! Our Newsletter is following this development, and will bring readers more information as the system develops.

Our local breakthrough came about too late to be included in the *Ten Emerging Technologies for 2007* listed by the Massachusetts Institute of Technology. We will list them here for readers' information: (1) Peer-to-Peer Internet Networks, intended to 'save the Internet from drowning under the load of applications;' (2) Boosting photovoltaic cell output; (3) Treating depression with genetically-engineered 'photovoltaic neurons;' (4) 'Peptide fibrinogen' that will halt bleeding in an instant (ideal for accident scenes); (5) 'Augmented Reality' - accessing databases worldwide, using 'expanded' cellphones; (6) 'Metamaterials' that form security blankets, making objects 'invisible;' (7) Higher resolution for Digital Photography, using algorithms to process images; (8) Personalized Medical Monitors, using sensors and computers to follow patient progress in hospitals; (9) Increasing DVD Capacity (nearly 1000-fold), and (10) Tools for accurately identifying minute differences between tissue cells - a boost to early detection of cancers. Briefs on these are published in this month's *Technology Review*. For information on obtaining copies, please E-Mail [halla@talgov.com](mailto:halla@talgov.com).

## The 2007 Lannutti Memorial Lecture



Plan now to attend the Tenth Annual Lannutti Memorial Lecture, which will take place at the Florida State University Physics Lecture Theater, UPL101 on Thursday, April 5, 2007, beginning at 3:45 p.m. The Lecture will be preceded by a reception in the foyer of the Lecture Theater, beginning at 3:15 p.m.

This year's Lannutti Lecturer will be Dr. Homer Neal, Director of the University of Michigan's ATLAS Project, and the Samuel A Goudsmit Distinguished Professor of Physics at the University. As a member of the DZERO Collaborative at Fermilab, he was a part of the team that announced the discovery of the top quark in 1995. His research specialty is Experimental High Energy Physics, in which he collaborated with the late Dr Lannutti. He fondly remembers Dr. Lannutti: "I knew Joe and had a very high regard for his professional accomplishments in Physics and computing, and greatly admired his wonderful human character."

The theme of his Lecture will be *Stresses in US National Science Policy*. "In high energy physics, for example," he says, "the nation is facing the prospects of having zero cutting edge accelerators for a period of more than a decade, even though this is a field where the U.S. had previously been one of the dominant players. Our present successes have been built on past sound national science policies. One can question whether our policies of today are properly preparing the nation for the future." This reasoning is consistent with the basis for the work being done by the TSS Science Education Committee.

TSS is very grateful to the FSU Physics Department for their part in sponsoring and conducting this annual Distinguished Lecture in memory of a great scientist.

Parking passes for use in a reserved area are available at \$2 each. Please reserve yours not later than Thursday, March 29, (they have to be prepared) by E-Mail to [hagopian@hep.fsu.edu](mailto:hagopian@hep.fsu.edu). Then, on your arrival for the lecture, please drive by the Lecture Theater, and an attendant on the roadside will collect your fee, and give you your pass and directions to the parking area.

## Science Fair

The intensity continues: Our **Capital Region Fair** took place on Friday, February 9, and the winner of the TSS Award was Tyler Rowland of Maclay School. Tyler was the first-place winner in the Senior Division in the field of Botany. The award, which consists of a one-year subscription to *Scientific American*, as well as a check for \$100, will be presented to him at the LAST Awards Banquet in April.

If you have not yet signed up to help judging the **State of Florida's Fair**, please do so as early as possible: the need is still urgent. Categories are the same as those in our high schools—covering the full spectrum from Behavioral

and Social Sciences to Zoology. TSS members who can assist in this important event, which takes place in Fort Myers April 11 – 13, 2007 (judging on April 12), are asked to contact Dr. Nancy Besley by E-Mail to [besleyn@ocps.net](mailto:besleyn@ocps.net), or visit the Fair's website at [www.floridassef.net](http://www.floridassef.net) and follow the leads for registering as a judge, obtaining hotel information, etc. This activity is all voluntary.

## Departments

### Awards

The TSS Awards Committee is inviting nominations for the award of the Gold Medal for 2007. Please prepare a short citation about your nominee, and E-Mail with his/her name and other pertinent data to [apphkr@aol.com](mailto:apphkr@aol.com) or [ray\\_bellamy@yahoo.com](mailto:ray_bellamy@yahoo.com), Awards Committee Co-Chairs, by March 24, 2007.

### Leon Association for Science Teaching (LAST)

LAST is putting the finishing touches on the arrangements for their 2007 Excellence-in-Science-Teaching Awards Banquet, to be held on Tuesday, April 16, 2007, at 5:30 p.m. for the Social Hour, and 6:00 p.m. for Dinner, at the Silver Slipper Restaurant. Several of our local Science Teachers will be honored at this gala event.

Plan now to attend. Reservations will be \$20 per person. Details regarding making reservations, etc., will be published in our April Newsletter.

### Mentoring

At last - an opportunity for mentoring. After years of unsuccessful attempts to get mentors into our schools, to assist with the science-learning process, one school is now calling for mentors: Riley elementary announced their need in the press, recently.

TSS members are invited to seize this opportunity to share their scientific expertise in the classroom. To do so, please E-Mail [halla@talgov.com](mailto:halla@talgov.com), and request a "mentor-qualification packet." This will enable the mentor to register with the School Board - a requirement for security and safety.

### Program

Members are invited to hear Professor Reginald Little address the Scientific Society on Thursday, March 22, on the subject, *The Discovery of Ferromagnetism in Carbon*, at the Magnet Lab's Seminar Room. As usual, drinks will be served from 6:00 p.m., and the presentation will begin at 6:30 p.m. Please bring a colleague; we shall be happy to sign him/her up for membership.

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## Tidbits

- The Mary Brogan Museum will be holding their fifth annual fundraising Florida Wine Festival on April 12, 13 and 14. Special musical guests will be *FAB - A Tribute to the Beatles*, on Friday, April 13, at 7:00 p.m., when the Festival will also feature fine dining. For more information, please visit [www.thefloridawinefestival.com](http://www.thefloridawinefestival.com).
- Atomic Batteries reborn? Global Technologies, Inc., in Idaho Falls has developed a new, more powerful type, that does not have the radiation problems of the 1950s version. It seems to hold promise - and an application for nuclear waste from electric generating plants. More anon.
- Are earthquakes becoming more 'popular'? And that includes the tsunamis generated when they occur at sea. Recent events have prompted a determination to improve forecasting, including pinpointing the epicenter. Research into the subject is revealing that there are scientific features that have not been studied before, and scientists are using them in the development of a forecasting technique. More anon.