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EDUCATION AT THE NHMFL

Opportunities for Students, Teachers, and the General Public

Left to right: Gina LaFrazza-Hickey (Education Specialist), Dave Sheaffer (Web Developer), Carlos Villa (Outreach Coordinator), Tom Hawkins (Ph.D. student), Dr. Pat Dixon (Center Director).

Educators with the Center for Integrating Research and Learning began this academic year with five regional educator workshops, providing quality professional development to 250 Florida teachers and disseminating 500 curriculum packages. This effort supported the greater part of a contract with Florida Department of Health, a partnership that has been in effect since March 1999. We are extremely pleased that Florida's science and health educators recognize the materials created by the Center as quality, standards-based, inquiry activities for elementary and middle school students. In addition to fulfilling its responsibility for this contract, several other continuing and new initiatives have been the focus of Center efforts.

Since the addition of an Outreach Coordinator, the Center's outreach to area schools has tripled. Outreach and tours were provided for over 7,000 people, not counting the more than 2,700 people who attended the 9th Annual Open House on March 1, 2003 (see page 8). New outreach materials have been created to make the experience more meaningful for students and to help teachers translate what students have learned at the laboratory when they return to their classrooms. More and more teachers are turning to the Center as a resource. For that reason, we have branched out and offer outreach not just on magnets and magnetism, but on optics, use of scientific tools such as digital microscopes, technological tasks such as building model MagLev trains and gauss meters, and on general physics principles and concepts.

Center educators have been contracted by the local school district to provide two 4-day summer institutes to provide science content and strategies to area teachers. *The World Is Your Classroom* extends beyond the Magnet Lab to other area scientific, historical, and cultural resources such as the Museum of Florida History, the Brogan Museum of Art and Science, and the Tallahassee Museum of Science and Natural History. This workshop looks at the processes of science, communicating in science, using models, and presentation skills in science instruction. *Changing Perspectives* provides content in magnets, magnetism and related concepts, and light, color and optics. Teachers participate in practice with hands-on inquiry based activities to translate these complex concepts for their students grades K-12.

Work continues to progress on fine-tuning summer professional development offerings as well as getting ready for both the Research Experiences for Undergraduates (REU) and Research Experiences for Teachers (RET) programs. Nineteen undergraduates have committed to 14 positions at the main site in Tallahassee, 4 positions at LANL, and 1 at the University of Florida in Gainesville. The Center expects to host 16 teachers as well, one-third of them returning for a second summer.

Two presentations were given at the National Science Teachers Association meeting in Philadelphia in March, 2003, one focusing on the Research Experiences for Teachers program and one providing hands-on experiences for teaching magnets and magnetism. One area of concentration at national educators' meetings is providing unique resources for and approaches to teaching science. This includes descriptions of how scientists and researchers have worked successfully with students and teachers. Currently there are 17 middle school students participating in a mentorship with 8 scientists at the laboratory. Each Friday, seventh grade students spend 3 hours working on a semester-long project culminating in a public presentation of their research.

Enhancements to the Web site, *http://education.magnet.fsu.edu* are an ongoing process with the assistance of a web page designer. The Center has instituted a number of dynamic elements, such as *Book of the Month*, which is a resource for teachers, students, and parents. Literature that has a strong science component is recommended for readers from kindergarten to adult. Digital microscope images and time-lapse photography of crystal growth provide an on-line teacher resource laboratory. There are plans to expand this so that students and teachers can access the images as well as add their own images to the site. A movie clip created by the Educational Media group that highlights exhibits and demonstrations from the March Open House is also included on the Web site.

The Center has expanded its outreach to underrepresented groups in science through *The Girls in Science After School Enrichment Program*, a joint venture between the Center at the NHMFL and the Center for Equity at Florida A&M University. This initiative targets middle school girls with the purpose of facilitating and maintaining interest in science and technology by increasing science literacy and content knowledge. The immediate goal is to provide middle school girls with an after-school experience

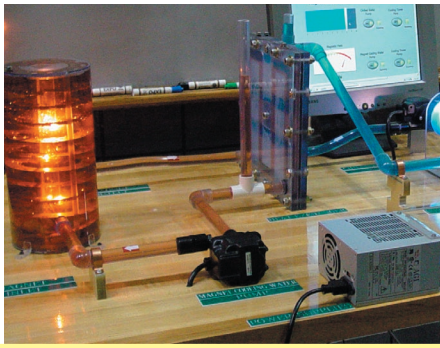
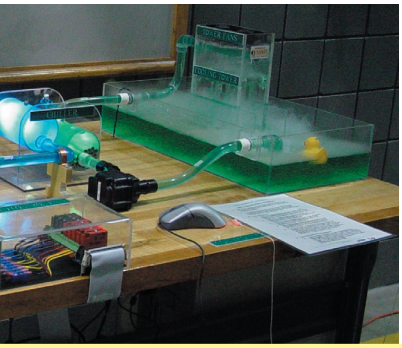
that encourages them to look at science as a possible career or academic option. A secondary goal is to encourage girls to choose upper level high school science and technology classes, expanding their career and academic options. Currently, the *Girls in Science Program* hosts 30 middle school girls from the Tallahassee area. The Center is hoping to expand this program for the 2003-2004 school year.

We continue to network with other universities and university programs to expand our own offerings. Currently, the Director is conducting evaluation for the University of Nebraska-Lincoln, is working with the RET program coordinator at Columbia University, is maintaining a long-standing working relationship with Northwestern State University. In partnership with Justin Schwartz of the NHMFL Magnet Science and Technology Group, we are working on a unique opportunity to provide an educational component to the 2004 Applied Superconductivity Conference. The NHMFL, with support from the U.S. Department of Energy, Institute for Electrical and Electronics Engineers, and the Applied Superconductivity Conference, Inc., and in collaboration with the University of Houston and the University of Wisconsin, Madison, propose a mobile educational exhibit showcasing superconductivity and applications of superconductivity. Science museums, schools, and community groups will have access to the exhibit to translate the concept of superconductivity through hands-on experiences on magnetism, electricity, and related concepts. Discussions have been held with Florida Department of Education decision makers to institute a teacher-in-residence program to facilitate this effort.

Center staff, NHMFL staff, and university staff will hold a retreat in May 2003 as the culmination of a year-long outside study being conducted to identify areas of focus for the next 5-year period. We look forward to reporting a reinvigorated program of innovative educational opportunities for students, teachers, and the general public.

For further information, contact Dr. Pat Dixon, Director, NHMFL Center for Integrating Research and Learning, 850-644-4707, pdixon@magnet.fsu.edu.

MARCH 1st OPEN HOUSE 2003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