

The Downlink



Albuquerque Section

Sandia Engineers Make Advancements in Diverse Research Areas

Center for Integrated Nanotechnologies (CINT) Promotes Scientific Collaboration

The Center for Integrated Nanotechnologies (CINT) is a Department of Energy/Office of Science Nanoscale Science Research Center (NSRC) operating as a national user facility devoted to establishing the scientific principles that govern the design, performance and integration of nanoscale materials.

As a National User Facility, CINT issues a semiannual Call for User Proposals, by which the scientific community can submit User Proposals for work to be done at CINT. The next Call is anticipated in the fall of 2006 and will be announced on the CINT website (CINT.lanl.gov or CINT.sandia.gov).
(continued at right)

Individual and team proposals from industry, academia and other laboratories are welcome. The user proposals are first screened for feasibility, then reviewed and prioritized by the external Proposal Review Committee based upon the following criteria:

- 1) Is the research scientifically sound and significant?
- 2) Is the research relevant to the CINT nanoscience integration mission?

If approved, user proposals for pre-competitive research can have access to the CINT facilities and CINT scientists' expertise at no cost, as the results will be published in the peer-reviewed open literature. Proprietary research can be approved as well and conducted with full-cost recovery as required by Federal regulations. (continued below)

Over the last three years, CINT conducted a pre-operational ("Jump-Start") user program which received 257 proposals. Approximately one-third of the proposals were approved.

There are five NSRCs across the country. Although many scientists apply to use the CINT facilities because of its state-of-the-art equipment, the human component (i.e., the CINT scientists' deep knowledge) also contributes to the demand for CINT services.

Dr. Neal Shinn is the CINT User Program Manager (ndshinn@sandia.gov). He explained that the CINT user facility will focus on promoting the use of nanoscale technology in microscale products and applications. "We encourage users to bring their visions to CINT. We have the facilities and the knowledge to make them happen here."

Dr. Aaron Gin is a CINT Scientist whose focus area is electron beam lithography. According to Dr. Gin, "CINT provides the DOE and the national laboratories an opportunity to reach out to and partner with industry and academia. This collaboration will benefit the scientific community because research problems may be addressed in unison, expediting the resolution process." (END)

Newsletter Editor

Marisa Ruffolo, Ph.D.
mruffolo@ieee.org

Regional Paper Competition Winner

Joseph Craig, a New Mexico Tech student, placed fourth in the 2006 IEEE Region 6 (12-state) Student Paper Competition in September for his paper, "Airborne Visible, Infrared and Thermal Imaging System."

A Message From the Editor

It has been my privilege to serve the Albuquerque Section of IEEE over the last year as the newsletter editor and the director of public relations. I have relocated to the San Francisco Bay Area, so this is my last publication for the Albuquerque Section.

I hope that you have enjoyed the quarterly newsletter, and that, with each edition, you gained knowledge and insight. I also hope that my frequent e-mails have allowed you to stay connected to the organization.

If you are interested in serving as the newsletter editor or the director of public relations for the IEEE Albuquerque Section, please contact Chair Gerald Wood (gerald.wood@ngc.com).

I thank all of you for your support over the last year, and I wish the IEEE Albuquerque Section continued success! —Marisa Ruffolo, Ph.D.



Officer Profile: 2007 Chair

Ray Byrne was elected vice-chair of the Albuquerque Section of IEEE in 2006, and he will be serving as chair in 2007.

Ray joined IEEE in 1986, when he was an undergraduate student at the University of Virginia. He graduated with a bachelor's degree in electrical engineering in 1987 and attended the University of Colorado, where he earned his master's in 1989. Upon graduation, he joined Sandia National Laboratories, where he is still employed. Over the last 17 years, he has worked on different robotics projects, such as tele-operated vehicles, automated highways and micro-robots. He has also worked on reentry vehicle guidance and high-speed fiber optic satellite network projects. In 1995, he earned his Ph.D. in electrical engineering at the University of New Mexico.

Ray began serving on the Board in 1993. He continues to be an active member because he values the sharing of technical knowledge among professionals, and he encourages other working professionals to get involved in the organization. "IEEE has enabled me to stay technically current through IEEE publications and conferences. It has also provided me with the opportunity to make technical contributions to our engineering community through publications in *IEEE Control Systems* magazine."

Ray values the leadership experience he has gained through IEEE. In his spare time, Ray also enjoys golfing, and he is now the president of the New Mexico Golf Association (www.newmexicogolf.org). Ray may be reached at rhbyrne@sandia.gov.

Sandia Excels in Information Technology

Sandia National Laboratories' (SNL's) Integrated Information Community and Environment (IICE) team is at the forefront of developing and implementing new information technology services. (continued below)

... and the National Nuclear Security Administration (NNSA) as well. The group is currently embarking on several new projects which should have the same impact.

The DOE and NNSA require that the national laboratories provide regular asset reports to ensure that the labs are good stewards of taxpayer funds. The

2007 IEEE Albuquerque Section Board Elections

Ballots will be sent in early October and are due on **Oct. 31**.

Volunteers are an essential part of the IEEE organization. Members who volunteer play an important role in an organization dedicated to enhancing the quality of life for all.

According to Ken Washington, SNL's CIO, "The goal of the team is to create an integrated environment and provide high quality information services for Sandia's personnel." Over the last few years, the team has completed several initiatives which not only benefit Sandia National Laboratories, but the Department of Energy (DOE) (continued top right)

DOE has launched a major initiative to deploy a commercial software package to support this reporting requirement. The IICE team found that implementing the software directly onto national laboratory desktops would introduce security risks and would be very costly to deploy and support. The group proposed that SNL use a hybrid approach (continued below)

where a single node of the DOE provided tool would interface with the existing Network Information System that has been in use at Sandia for many years to manage computing assets in the environment. This hybrid approach is expected to be more secure and save considerable time and valuable resources in meeting this requirement. NNSA recognized the value of this approach and has included it as an option for others to use across the NNSA complex.

Sandia is at the leading edge of providing secure, effective and efficient classified computing via a diskless classified work environment. The IICE team has implemented several methods of allowing its on-site employees to gain access to vaulted classified systems remotely. This decreases the risk of compromising the physical data by ensuring that all classified information is secured and managed in centralized vaults, rather than in employee work areas. Employees appreciate the flexibility this affords them, since the remote access hardware and software systems allow them to access both classified and unclassified systems without leaving their desks. SNL has hosted a workshop in which the NNSA and various government labs were able to learn about the benefits of a diskless classified workspace and Sandia's approach. (continued on next page)

The success of this initiative at Sandia has prompted the NNSA to model the NNSA-wide solution after Sandia's approach.

SNL is currently embarking on a three year effort to champion an efficient suite of information services and business processes, which it calls the Integrated Enterprise Information Architecture (IEIA). The process involves modeling the tools, information and services supported by the IICE and implementing solutions to minimize the overlap and duplication of services while meeting the business needs of the lab. Barry Hess, SNL's Deputy CIO and Chief Information Architect is leading this Enterprise Architecture effort. Hess plans to utilize the experience and knowledge gained through this initiative to assist the DOE in implementing enterprise architecture standards across the national laboratories. (END)

Intel International Science & Engineering Fair: May 13-19, 2007

The Intel International Science and Engineering Fair (ISEF) will be held at the Albuquerque Convention Center on May 13-19, 2007. It is the largest pre-college science competition in the world for the ninth through the twelfth grades. ISEF brings together students, teachers, parents, corporate executives and government officials from around the world. Students compete for over \$3,000,000 in scholarships, tuition grants, scientific equipment and science related trips.

Since 1950, ISEF has played a key role in bringing young people together and generating interest in the sciences. ISEF will attract 1,500 top science and technology high school students from 50 U.S. states and 40 countries. The event will also attract 1,200 expert judges and a panel of Nobel Laureates, with an attendance of well over 5,000 enthusiasts, for celebrating the recent discoveries of tomorrow's youthful leaders. (continued below)

The IEEE Albuquerque Section will provide judges to select the 2007 IEEE Presidents' Scholarship winner for the ISEF. The scholarship recognizes a deserving student for an outstanding project that demonstrates an understanding of electrical and electronics engineering, computer engineering or other IEEE fields of interest. It is presented during the annual ISEF, and the IEEE Presidents' Scholarship Fund provides the funds for the scholarship. The IEEE Educational Activities Board administers the scholarship, with assistance from IEEE volunteers who serve as judges during the ISEF. The scholarship includes U.S. \$10,000 payable over four years, complimentary IEEE

Student and Student Society memberships, a framed Certificate of Recognition, and an engraved plaque. It is the largest pre-university scholarship offered by the IEEE.

IEEE member Harjit S. Ahluwalia will serve as the lead judge to select the 2007 Presidents' Scholarship winner for the Albuquerque ISEF. The judging process will require about 25 volunteer judges from the IEEE Albuquerque Section. Each judge will have to commit up to two days to the competition. Anyone interested in judging should contact Harjit by e-mail: hsa@unm.edu.



Distinguished Talks

All Distinguished Public Talks listed below will be held at 5 p.m. at the UNM Conference Center, 1634 University Blvd. NE. Free parking is available in the attached (well-lit) parking lot. Refreshments will be served at 4:30 p.m. For more information contact Professor Harjit S. Ahluwalia, Department of Physics & Astronomy; T: 277-2941, e-mail: hsa@unm.edu.

Thursday, Oct. 19:

Professor Diane G. Lopez, UCSC, Santa Cruz, CA. ***"The case of the disappearing Fur Seals: How bones, isotopes, an ancient DNA are helping solve a prehistoric mystery."***

Thursday, Nov. 16:

Professor Vito Quaranta, Vanderbilt University, Nashville, TN. ***"Biology becomes an exact science."***

Thursday, Dec. 7:

Professor Alison P. Williams, Princeton University, Princeton, NJ. ***"Who will do science in the 21st Century?"***

Copyright © 2006 by
UNM LLC
10985 Granada Lane
Overland Park, KS 66211
Telephone: (913) 754-4000
www.illustratus.com





IEEE

October 2006						
S	M	T	W	T	F	S
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30	31				

November 2006						
S	M	T	W	T	F	S
			1	2	3	4
5	6	7	8	9	10	11
12	13	14	15	16	17	18
19	20	21	22	23	24	25
26	27	28	29	30		

December 2006						
S	M	T	W	T	F	S
					1	2
3	4	5	6	7	8	9
10	11	12	13	14	15	16
17	18	19	20	21	22	23
24	25	26	27	28	29	30
31						

18 SPIN
 11:30 A.M. to 1 P.M.
 UNM Continuing Education Facility
 1634 University Blvd. NE
 Contact: Deborah Ortiz
 daortiz@comcast.net

19 Distinguished Public Talk
 Please See Details on Page 3
 Contact: Harjit Ahluwalia
 hsa@unm.edu

25 IEEE Board Meeting
 11:30 A.M. to 1 P.M.
 SCALO North Italian Grill
 3500 Central SE
 Contact: Ray Byrne
 rhbyrne@sandia.gov

15 SPIN
 11:30 A.M. to 1 P.M.
 UNM Continuing Education Facility
 1634 University Blvd. NE
 Contact: Deborah Ortiz
 daortiz@comcast.net

16 Distinguished Public Talk
 Please See Details on Page 3
 Contact: Harjit Ahluwalia
 hsa@unm.edu

29 IEEE Board Meeting
 11:30 A.M. to 1 P.M.
 SCALO North Italian Grill
 3500 Central SE
 Contact: Ray Byrne
 rhbyrne@sandia.gov

7 Distinguished Public Talk
 Please See Details on Page 3
 Contact: Harjit Ahluwalia
 hsa@unm.edu