The GTRI Connector

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Looking for Something?

If you submitted a story or story idea and don't see it in this issue, never fear — it's on our list for August! We have a backlog of stories. The articles-in-waiting should appear in the next issue. If you have questions, call Lea McLees at 404-894-4259.

Celebration Planned

GTRI Records Best Awards Year in History

By Lea McLees, RCT

GTRI recorded its greatest awards year yet during FY 97, with researchers bringing in $103,061,000 in awards — more than GTRI has ever recorded in a single year.

"We not only set a new record in awards, but we broke through the $100 million threshold for the first time," said Ed Reedy, GTRI's interim director. There was a lot of really hard work by people writing proposal and working projects. Thanks to everyone!"

FY 97 awards were up significantly from the FY 96 figure of $84 million. Our previous awards record, set in FY 95, was $98.7 million.

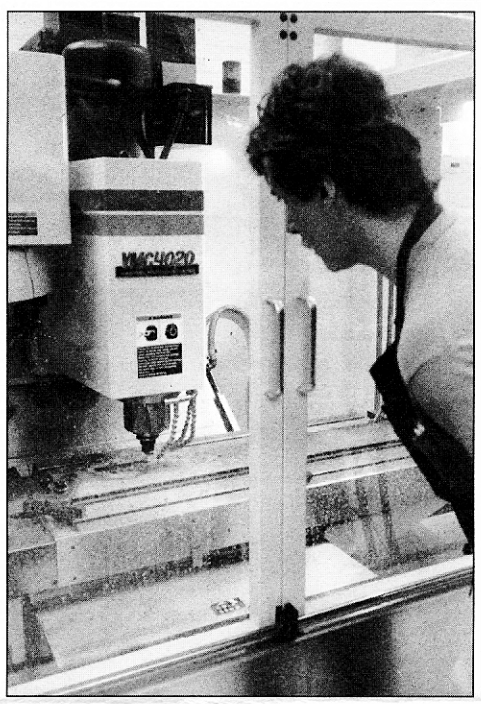
Celebrations are planned on campus and at Cobb County.

For a recap of FY 97 achievements, see Reedy's letter to employees on page 5.

Campus celebration: 3:30-5 p.m. August 18, CRB 119

Cobb celebration: 3:30-5 p.m. August 29, Bldg. One, large conference room.

Drop by for refreshments and fellowship!



See the article below to learn more about the Fadal Vertical Machining Center Randy Lloyd is shown using in the GTRI Machine Shop. (Photo by Lea McLees)

New Shop Equipment Offers Flexibility

By Lea McLees, RCT

GTRI's Machine Shop recently welcomed a new addition — a Fadal Vertical Machining Center.

The computer-controlled Fadal mills, cuts, profiles and drills metals, plastics, ceramics and other materials along the x, y or z axis of an object, and adjusts for pitch and yaw. Its work is accurate to within .0008 of an inch, compared to the .005 accuracy offered by its predecessor, a 1983 model, says Machine Services Manager Phil Mullins.

"It offers more flexibility for our customers," Mullins says. "We will be able to design and machine solids, as well as larger items, and it's almost four times faster than any other milling machine on campus."

The machine also allows the shop to perform at least $2,000 in work each month in house — tasks ordinarily sent to off-campus vendors. Keeping the work in house results in lower cost, faster turnaround time, and closer working relationships with designers, Mullins says.

Instrument makers Randy Lloyd and Steven Sheffield and machinist Brad Parker were factory trained to use the machine, which incorporates three computers. On their own time they also are taking additional Fadal operations courses at DeKalb College.

"It's faster — I can make all the cuts I need to make in one pass," Lloyd said as he worked on an 80-inch beam clamp that will grip paper for a customer at the Institute of Paper Science and Technology. "I can make a piece like this one in half the time."

The Fadal is not the only new addition to the shop — it's located in a portion of the shop that has been spruced up for the first time in 20 years, resulting in better lighting conditions for employees. The CNC machining room was enclosed and air conditioned to keep employees and equipment comfortable. And the milling/bench work room's dingy walls, floor and ceiling were steam cleaned twice and repainted

Continued on page 2

Observed & Noted

FY 97 was an excellent year for GTRI. *Turn to page 5 to review our progress.*

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Encourage your artistic youngster to enter the charitable campaign poster contest. *See details on page 3.*

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Our Cobb County Facility will be affected by upcoming road projects. *Turn to page 3 to learn more.*

■

Chris Barnes , (SEAL) has tested a new pattern recognition systems successfully with mammograms. *Learn more about the work on page 4.*

■

Bud Sears recently retired after 30 years of service to GTRI. *Read about the retirement reception his friends and colleagues organized on page 6.*

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A total of 18 of our colleagues have been promoted! *Find out who deserves a hearty congratulations on page 6.*

■

Mitch Ramsey, Deborah Hightower and Bryan Black all recently began work at GTRI. *Get acquainted with these new employees on page 7.*

■

Several among us recently completed degrees. *Find out who received coveted diplomas on page 7.*

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As usual, the back page is filled with professional and personal news. *Flip this issue over to catch up on the latest developments!*

The GTRI Connector is on line at <<http://www.gtri.gatech.edu/connector/ctwelcom.htm>>.

News & Notes

Meet the Baker MAPS Group

This month we continue meeting Management and Project Support (MAPS) group employees who work in the Baker Building.

Lisa McDonald is a project support analyst for the Baker/O'Keefe MAPS group. She provides information to researchers in EOEML to help them prepare lab status reports, as well as reports for special projects. Lisa also helps prepare proposals and budgets, manages financial data, and performs other administrative duties as necessary. She began working for MAPS three years ago and spent almost two years at the Cobb County Research Facility (CCRF) before transferring to campus. A 15-year veteran of GTRI, Lisa previously worked in the Program Office of the Systems Development Lab (SDL) writing technical documentation and assisting with proposal writing.

Lisa McDonald

A native Atlantan, Lisa describes herself as a lifelong Tech fan. When she's not busy at work, she enjoys reading, music, cross-stitching, crocheting, backpacking and hiking. She also devotes some of her time volunteering for Bosom Buddies, a support group for women with breast cancer.

Joanna King, administrative assistant, has been with Georgia Tech for 14 years. She worked as the secretary to the director of MSTL (now EOEML) for seven years before moving to the MAPS group in 1990. Before coming to Tech, Joanna lived in California and worked for the Dean of Engineering at California State University, Northridge. In her current position she is responsible for keeping project files, tracking deliverables and processing time sheets.

Joanna King

Joanna lives in Dunwoody with her Burmese cat, Kashmir. The mother of three, she has two sons, a daughter and five grandchildren. Joanna describes herself as a people person. She says she loves meeting and interacting with people from different backgrounds. Her hobbies include reading, hiking and music. She is an avid dancer who enjoys ballroom dancing and ballet. In her free time Joanna is taking classes at her church to learn Spanish. She is also involved in the selection of recipients for scholarships awarded by the Georgia Tech Women's Forum.

Shop ***From page 1***

bright white — new and brighter lighting was added, as well, Mullins noted.

"The light level in that area went from 30 to 60 lumens just from cleaning and repainting," Mullins said. "With the new lighting, it goes to 85 lumens."

Shop employees painted everything but the floor themselves, and contracted that out.

"It changes your attitude and motivation about your work environment," Bruce Parker said of the improvements. "Seeing better helps you focus, too. We do such high-tech work here — we need to be able to focus on what's going on."

The renovated area includes a new quality control room with statistical

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SELECTED MAY 1997 AWARDS

Title	PI/Laboratory	Sponsor	Funded Amount
Electric/Hybrid Vehicle Virtual Testbed	Michelson, R. (AERO)	Southern Coalition Adv. Trans. Inc.	$ 200,000
MCOTEA Support	Smith, R. (ARL)	Universal System & Tech.	35,869
Precision ESM (PESM) Model for the Multi-sensor Resource Allocation Program	West, P. (ELSYS)	U. S. Navy	64,836
Gray Threat Simulator Sys. Instrum. Upgrade	McDougal, G. (ELSYS)	U. S. Air Force	172,000
Integrated Support Systems for WR/LNERT	Ingle, R. (ELSYS)	U. S. Air Force	600,000
VOC's in Air	Bayer, C. (EOEML)	RJR Nabisco	24,997
Imaging Tracker Algorithm Analysis	Mullikin, A. (EOEML)	U. S. Navy	200,000
Corps ASM/MEAD Project Definition Support	Dalton, J. (HRO)	U. S. Army	74,060
Hardware & Software Requirements for Definition for Government of Singapore...	Smith, J. (HRO)	U. S. Army	205,347
Corps SAM/MEAD SSR Integration Support	Dalton, J. (HRO)	U. S. Army	84,488
SWBS Phase 3 Extension	Pennywitt, K. (ITTL)	Logicon Eagle Technology	73,419
Joint Warfighting Center Support — Base Year Support Activities	Grover, J. (ITTL)	Cubic Applications Inc.	71,306
Leveraged Manuf. Tech. for DoD Tactical Systems	Bohlander, R. (ITTL)	U. S. Army	83,329
Manuf. Productization for Microjet Cooling Devices	Bohlander, R. (ITTL)	U. S. Army	193,686
Adaptive Communications for Integrated Avionics	Moss, R. (ITTL)	U. S. Air Force	526,000
High Level Architecture Run Time Infrastructure	Loper, M. (ITTL)	SAIC	53,524
Maintenance for the Millimeter Wave Instrumentation Radar (MMWIRS)	Moore, L. (SEAL)	U. S. Army	905,200
Revised IBIS Hammer Preliminary Plann. & Exploitation	Adams, J. (SEAL)	Dynetics Inc.	131,305
Firefinder Engineering Support Package	VanderMeer, W. (SEAL)	Malibu Research	191,193
Radar Configuration Assess. for Enhanced Firefinder	Holm, W. (SEAL)	FiberTek Inc.	48,507
Elect. Protection Assess. Analy. Technique Dev.	Morris, G. (SEAL)	U. S. Air Force	122,801
Technical & Engineering Support for PM Firefinder	Holm, W. (SEAL)	Sytex Inc.	246,968
EMC Testing	Santamaria, J. (SEAL)	Nordson Corp.	33,433
Air Target Algorithm Dev. (ATAD) FY97	Sylvester, V. (SEAL)	Tau Corp.	58,000
Mobcap East Robustness Analy.	Adams, J. (SEAL)	Dynetics Inc.	40,021
Non-Cooperative Target Identification (NCTI) Tech.	Cohen, M. (SEAL)	U. S. Air Force	100,000
Conformal Aperature Velocity Sonar (CAVES) Concept Evaluation and Testing (U)	Caille, G. (SEAL)	U. S. Navy	206,440
Radar Hardware Development Analysis	Belcher, M. (SEAL)	U. S. Army	50,000
Elect. Protection Assess. Analy. Technique Dev.	Morris, G. (SEAL)	U. S. Air Force	700,000
Army Radar Electronic Protection Assess. Analy.	Morris, G. (SEAL)	U. S. Air Force	325,000
Elect. Protection Assess. Analy. Technique Dev.	Morris, G. (SEAL)	U. S. Air Force	663,000
Flight Test Planning Study	Meadors, J. (STL)	U. S. Dept. of Defense	59,957
Workshops & Documents	Meadors, J. (STL)	U. S. Dept. of Defense	1,230,580

Attention Artistic Youngsters: Poster Contest In Progress!

If your child or grandchild loves drawing, the Statewide Charitable Campaign Poster Contest needs him or her.

The contest stimulates interest and participation in the Oct. 2-30 Statewide Charitable Contributions Campaign. All entries, to be inspired by the theme "It Could Be You," will be displayed at the Oct. 2 kickoff breakfast in the Wardlaw Center. At that event winners will receive prizes such as a Georgia Tech autographed football and basketball, Tech T-shirts, sweat shirts and caps, and for their families, tickets to a Tech football game.

Children in elementary school through 12th grade can enter. Entries can be 8 1/2"x11" to 22"x28" on paper, cardboard or poster board. They can address any aspect of helping others through service, fund-raising and other pursuits. Posters may feature themes of individual agencies such as United Way, American Cancer Society, Girls/Boys Scouts and Visiting Nurses. Entries will be judged on creativity, originality, clarity of theme, neatness and overall impression.

Put name, age, school, grade level, home address and phone number on the back of the entry, along with the Tech parent/grandparents name. Entries must arrive by Aug. 15 at Georgia Tech's University Partnerships Department, Wardlaw Center Rm. 226, Georgia Institute of Technology, 177 North Avenue, Atlanta, GA 30332-0392. Winners will be notified by Sept. 26.

For more information, call 894-5187.

Road Construction to Affect Cobb Facility

By Lea McLees, RCT

Employees at GTRI's Cobb County Facility (CCRF) can expect some changes as part of a proposed Cobb County Department of Transportation project to improve Atlanta Road.

The portion of the project affecting our facility is an access road that will cross CCRF property, says Support Services Director Evan Chastain. It also involves building a Richardson Road underpass for cars at the railroad tracks that parallel Atlanta Road, near the Dixie Avenue underpass. The underpass will provide access to Dixie Ave. at the Lockheed entrance, and will join Richardson Road at the entrance to the Naval Air Station.

"The access road was planned to facilitate traffic to and from facilities in this area, such as Lockheed, the Naval Air Station and our research facility," he said.

The original Cobb County Department of Transportation plan called for the road to wind between the transmit and receive towers at CCRF. However, GTRI has persuaded Cobb DOT to revise that part of the plan.

"That would have had a negative impact on our ability to continue measurements," Chastain said.

GTRI expressed its concerns in a letter to Cobb DOT, and talked with Cobb DOT representatives, as well. Chastain and Rusty Embry, facilities manager, also attended a public briefing on the project, sponsored by Cobb DOT to explain the engineering plan for the entire project and collect input from citizens.

The end result is that the access road's engineering plan has been changed to minimize its impact on CCRF. The road will not interfere with the towers, but it still will bisect the Hazardous Materials Training area.

"We expect negotiations between The University Financing Foundation and Cobb DOT to take care of that — we expect Cobb DOT to offer to purchase property contiguous to the grounds of CCRF and cover expenses for relocating and re-establishing the training area," Chastain said.

The access road and associated overall widening effort are funded by a one percent sales tax increase designated for road improvements. The next phase of the road project will include widening Atlanta Road from Windy Hill Road to South Cobb Drive, and eventually all the way to the Georgia 120 loop. A sidewalk will be included on the west side of the road; on the east side will be a two- to three-mile multi-use trail.

Under the multi-use trail will be buried all utilities, including fiber optics for running signals for Cobb County's Advanced Traffic Management System. Fiber optics could be laid under the trail between CCRF and campus, as well; an engineering study is in progress to determine whether to wait for that opportunity, or pursue other possibilities.

The next step will be for Cobb DOT to review the public input it received in May, Chastain said. From there, the plan is expected to be considered by the Smyrna City Council this summer. If Smyrna approves the plan, it will go to the Cobb County Commission for a vote. Then right of way will be acquired and construction contracts will be let.

Work on the underpass at CCRF will begin early on; the entire project will require three years.

Shop ***From page 2***

process control gauges and a tabletop made from a 4,000-lb. slab of granite 40 inches by six feet long. The surface is accurate within two millionths of an inch, meeting military standards for quality control. All inspection and testing of parts created in the shop is performed here.

Additional improvements expected this summer include:

- solids modeling/CNC programming software and new P5 computers to replace the 1989 systems at the Cobb County and campus shops. "This will work really well with the new Fadal VMC," Mullins noted. "It will allow us to do more programming directly with designers and be more productive."
- shop management software for the Cobb County and campus shops that will help employees track costs, schedules, estimates and inventory. "We are trying to do a lot of this manually now," Mullins said. "This will enhance customer service."
- building new stainless steel tanks used to chemically treat aluminum parts for corrosion resistance and promote paint adhesion. The new tanks will replace the older, fiberglass and mild steel predecessors currently in the campus shop.
- a new horizontal band saw to replace the 1982 saw at the Cobb County shop.
- a new panel saw for the Cobb County shop.

ELSYS' new director, retired Army Maj. Gen. George B. Harrison, greets his ELSYS colleagues at a July 14 welcoming reception. Look for an interview with Harrison in a future Connector issue. (Photo by Lea McLees)

News & Notes

Focus on Research

New Pattern Recognition Successfully Tested with Mammograms

By Lea McLees, RCT

An unusual new technique for pattern recognition and small object detection has successfully detected microcalcifications in digitized mammograms — and holds promise for discerning other medical pathologies, manufacturing defects, and various objects in commercial, defense and Internet imagery, as well.

Unlike most pattern recognition systems, this approach does not totally rely on the intervention of a human to extract and define a set of features for it. This new system is capable of efficiently searching a database of raw information to match patterns and detect objects, says Chris Barnes (SEAL).

"Instead of trying to extract a restricted set of features and train the classifier to look just for those features, we would have the expert user, in this case, the radiologist, directly build a database of known cancer indications encountered in the past," Barnes says. "We provide a quick-search software and firmware interface that allows this large database to be efficiently searched in near real time. Then, the radiologist's archive of past pathological cases essentially becomes a data classifier for processing new mammograms."

In its mammogram analysis, the software did not miss any microcalcifications in any of the digitized mammograms that were properly calibrated.

"In all of the data that's similar to our database data, this approach achieved nearly 100 percent detection with what appears to be acceptable levels of false alarms," Barnes said. "That's where you want to be with a mammogram — we intend to provide a safety net for the expert human analysis that may be susceptible to fatigue factors."

The system is not intended to replace radiologists or other medical or manufacturing professionals, Barnes says. It will merely suggest regions of mammograms or other data that should be given closer attention, based on past observations. Furthermore, the system provides confidence information related to the similarity between the imagery that is being analyzed and the past data archived in the database.

One of the advantages of GTRI's new approach is that as digital sensors/scanners achieve higher resolution, GTRI's classification system can exploit the increased resolution of the data. Eventually, some subtlety may be captured with the high resolution scanners that would be invisible at normal human-display resolution, or too voluminous to be displayed in a zoom-in format for human review. GTRI's system would provide a high confidence pre-screen capability for this high resolution data and cue the radiologist to only the suspect regions of the mammogram. The high resolution data might permit a more precise discrimination between benign and malignant tumors imaged in mammograms. The system also might help radiologists reduce eye fatigue, increase productivity and possibly increase patient loads.

Partially developed with internal funding from GTRI, the system uses a set of structurally constrained templates generated with a proprietary design process that creates database addresses which are searchable in a computationally efficient manner. The system also can mark cases similar to the example it is reviewing, so the user can make contextual evaluations. And the system can be configured to be trainable as needed by expanding the underlying database.

The system is user friendly and keeps engineering costs low, Barnes says. In addition to other medical applications, it can be applied to manufacturing quality control, preventive maintenance and defect detection — identifying cracked fan blades in aircraft, for example. Among the types of data the system can search are acoustical signal wave forms, one-dimensional signals and acoustics, sonar, ultrasound and radar signatures.

The biggest challenge in testing the system on mammograms was collecting digitized mammography data — radiologists weren't taking mammograms in digital form when Barnes began the project in 1991, and few people had taken time to digitize what they had. Dr. Debra Monticciolo, director of breast imaging at Emory University School of Medicine's Department of Radiology, provided initial data; the data Barnes later used was from National Expert and Training Centre for Breast Cancer Screening and the Department of Radiology at the University of Nijmegen, the Netherlands.

The next step is U.S. Food and Drug Administration approval, Barnes says, which means finding a research partner with enough interest to cooperate on extensive clinical studies. Suitable partners could include manufacturers of emerging digital mammogram scanners, medical research centers or insurance companies.

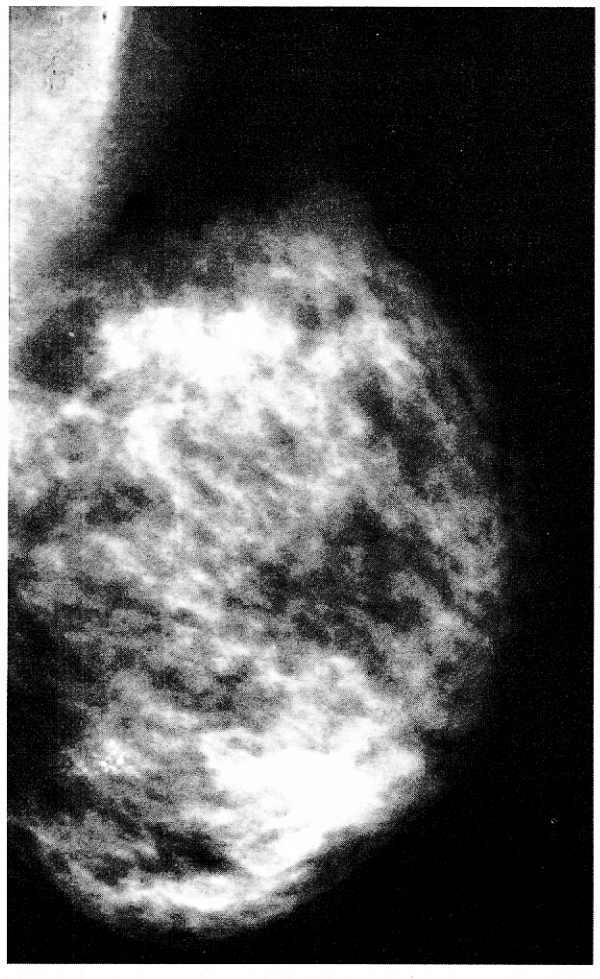
Why Test on Mammograms?

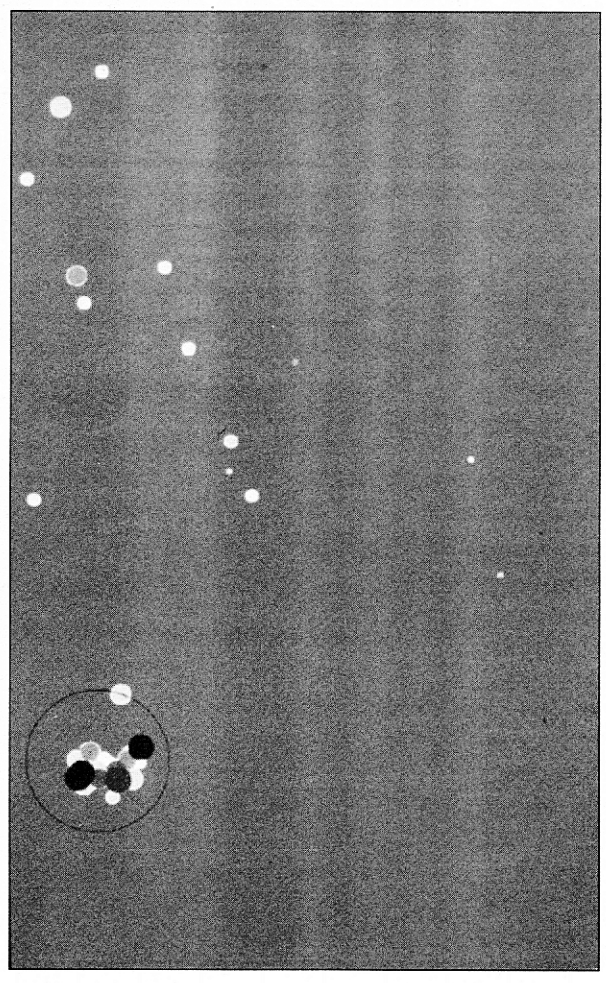
Barnes chose to test the system first on mammograms because breast cancer is a serious health threat — it's the leading cause of cancer death among women 40 to 55 years old.

Estimated new breast cancer cases in 1997: 180,200, women; 1,400, men.

Estimated deaths from breast cancer in 1997: 44,190 people, 99 percent of those female.

Source: American Cancer Society





The diagram (bottom right) shows results of the system's analysis of a mammogram (bottom left). The cluster of encircled dots corresponds with tiny, bright white dots in the mammogram that indicate microcalcifications, a possible sign of cancer.

Mammogram image courtesy National Expert and Training Centre for Breast Cancer Screening and Department of Radiology at the University Nijmegen, The Netherlands.

Focus on Research

FY 97 in Review

By Dr. Edward Reedy, GTRI Interim Director

Dear GTRI Colleague:

The Georgia Institute of Technology has closed the books on another fiscal year, and it was quite a fiscal year for the Georgia Tech Research Institute! The researchers and staff of GTRI continued to perform cutting edge research for our customers, paving the way for new and exciting opportunities in the future. I'd like to take this opportunity to summarize some highlights of Fiscal Year 1997 and to share with you my sincerest thanks for a job well done.

Georgia Tech had a record year for research awards during FY 97. Awards to Resident Instruction units totaled $94,204,060, with 1,111 awards. GTRI ended the year with 546 awards and a dollar value of $103,061,780 — a new record and the first time GTRI awards exceeded $100 million.

While research awards provide a highly visible and easily measured record of our success, they are just one component of it. Below are some other significant milestones from the year that has just been completed.

During fiscal 1997:

- The number of research proposals submitted was up 6.2 percent, with the dollar value up 13.5 percent, boding well for future business.

- GTRI held its first Industry Day to make local companies aware of how our capabilities might help their business operations.

- We thanked Bud Sears for a job well done as director of the Electronic Systems Laboratory, and welcomed George Harrison as his replacement.

- With start-up funding from the Georgia Department of Transportation, we launched the Georgia Transportation Institute to conduct research, development, education and technology transfer activities pertaining to all forms of transportation in Georgia.

- We said farewell to Joe Parks as director of the Systems Development Laboratory and welcomed Jeff Sitterle as SDL's new director.

- STL researchers authored several chapters and made contributions to a computational electromagnetic book.

- GTRI continued business operations with minimal disruptions during the Olympic Games, thanks to the outstanding preparation and execution of special security, access, parking and transportation programs orchestrated by our Research Security and Facilities Services departments.

- FalconView, a mapping system developed by Information Technology and Telecommunications Laboratory for the U.S. Air Force, was one of five finalists in the sixth Annual Windows World Open Competition.

- With researchers from Resident Instruction, we gained national and international attention through the First International Conference on Emerging Technologies for Micro Air Vehicles. These vehicles, with a wingspread of just six inches, have a variety of exciting potential applications.

- We added two new members to the group of GTRI researchers holding the prestigious title of IEEE Fellow. Bob Trebits and Michael Tuley joined the list of researchers honored by this professional organization. Bob Zimmer was selected as the recipient of the Association of Old Crows' Pioneer Awards for his sustained and prominent work in the field of electronic defense.

- We began a search to fill the shoes of Admiral Richard Truly, who served GTRI as director for nearly five years. Admiral Truly left for a challenging new position as Director of the National Renewable Energy Laboratory in Golden, Col.

- GTRI researchers won a $2 million AT&T grant to speed up the integration of technology into K-12 classrooms throughout Georgia. Foundations for the Future also involves the University of Georgia and the Morris Brown Research Institute.

- GTRI continued to enhance activities through the Intergovernmental Personnel Assignments. Don Bodnar, currently on an IPA to the United States Air Force, was named Chief Scientist of the U.S. Air Force's Rome Laboratory. Joseph Eash, Arlington Research Laboratory, began an IPA Assignment in the Department of Defense.

- GTRI's External Advisory Council met twice during the year to review our business plans and make recommendations on how we should deal with the challenges ahead of us.

- GTRI hosted the Ninth Annual Electronic Protection Workshop, sponsored by the Electronic Combat Branch of Wright Laboratory.

- Two GTRI research units were renamed to better reflect their missions. The Arlington Research Group became the Arlington Research Laboratory. The Aerospace Sciences Laboratory became the Aerospace and Transportation Laboratory to reflect its growing business in transportation.

- The 1996 Summer Games provided an opportunity for Aerospace and Transportation Laboratory researchers to conduct a large research and development project designed to demonstrate the feasibility of helicopter transportation in crowded urban areas. Operation HeliSTAR transported cargo and provided public safety services, and was headquartered at our Cobb County Research Facility.

- Concluding 15 years of dedicated service to GTRI, Joe Harrison retired as manager of GTRI's Eglin Field Office.

- Researchers completed the H2Fuel bus and delivered it for long-term testing by Augusta's public transit organization. The electrically-powered hybrid bus uses a hydrogen-powered engine to recharge its electric batteries.

- Krishan Ahuja, Eric Barnhart and Mark Richards were elected to serve as GTRI Fellows as we thanked Larry Corey and Bill Rhodes for their service on the Council.

- GTRI had an impressive record for on time deliverables. We ended FY 97 with 90 percent of deliverables on time.

- At the close of FY 97, GTRI researchers began writing GTRI's largest proposal effort ever — CIMTIC (C4I and Munition Test Improvement Contract) — with a multi-million dollar ceiling. Researchers also began writing a multi-million dollar proposal (ACTS - Air Combat Training System) for the Commonwealth of Australia, and we began proposal efforts with Turkey.

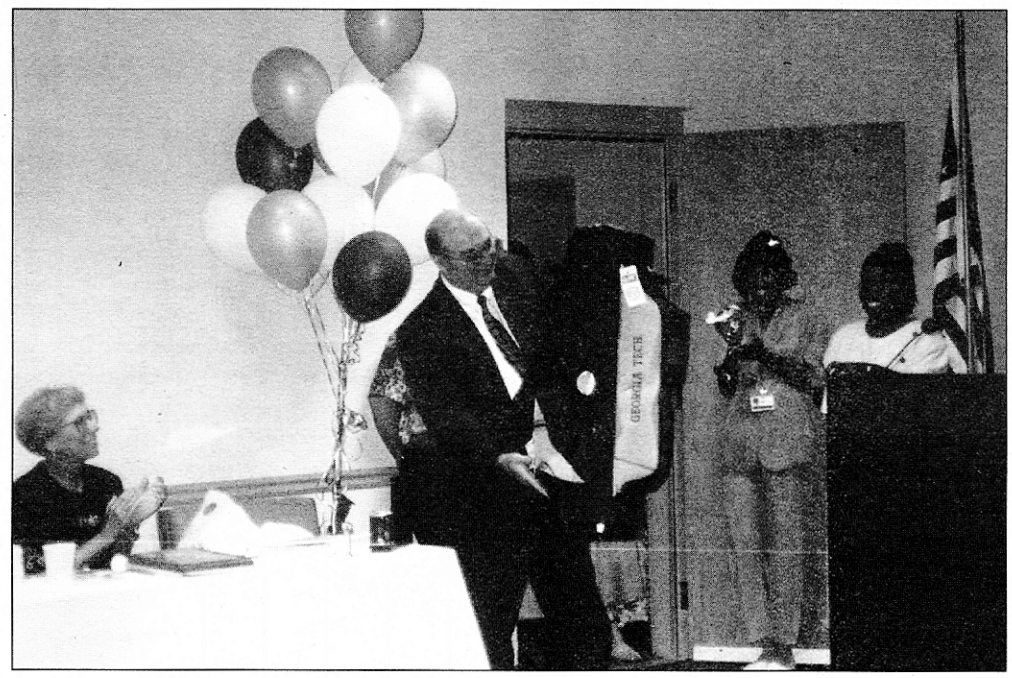
- GTRI continued to invest in itself — $4 million for equipment; research facilities improvement was $732,000; internal research investment was $356,000; $354,000 for cost sharing; strategic improvements equaled $110,000; the Faculty Leader Program investment was $129,000; and employee support and development programs totaled $286,000.

This compilation is far from complete, but as you can see, the past year has been enormously successful. Thank you for your role in contributing to GTRI's success.

Focus on Folks

Sears: There's "Something Special" About GTRI

By Joey Goddard, OCA



Bud Sears opens retirement gifts as his friends and colleagues look on. (Photo by Joey Goddard)

Bud Sears, formerly director of the Electronic Systems Laboratory (ELSYS), was honored last month at a retirement reception celebrating his 30 years of service to GTRI. Sears has been a fixture on the Georgia Tech campus since the early sixties when he was a student here.

After receiving bachelor's and master's degrees in electrical engineering, Sears was hired as a research engineer for GTRI. Since then he has become internationally recognized as an expert in electronic warfare. He also has authored or co-authored numerous publications and serves as a lecturer for electronic warfare short courses. His interests include electronic combat systems analysis, computer simulation, radar and communication systems, and modeling of human cognitive processes. Sears served GTRI as senior and principal research engineer and division chief before being named lab director.

Jim Cofer, director of the Advanced Programs Office (APO), was Sears' roommate while the two were students at Tech. At the reception he recalled how Sears landed a student job that Cofer wanted at the Engineering Experiment Station (now GTRI).

"Bud, you have ruined my life," joked Cofer. "But seriously, Bud has been a tremendous influence on all of us. I know I am a better person for having known him. [Bud], You can look today at your children and at the things your lab has done and be proud."

The reception honoree received a number of gifts from his friends at GTRI. Judy Wiesman, a graphics specialist in ELSYS, gave Sears a print of her original painting of the barn across Dalney Street from CRB. The System Evaluation Division, represented by Harry Andrews, presented Sears with a humorous pictorial history of his GTRI career. Terry Tibbitts, on behalf of the System Engineering Division, gave Sears a picture of Stone Mountain with ELSYS Lab Directors Sears, Larry Holland and Bob Zimmer carved into it. "We wanted to give Bud a reminder of the rock-steady leadership that he has provided over the years," Tibbitts said.

Paul Seaton of the Dayton Office awarded Sears a plaque of appreciation thanking Sears for his support over the years. "It is with great sadness that we see Bud depart," he said.

Sears also received a Georgia Tech golf bag and numerous golf accessories from his GTRI friends.

About 200 of Sears' friends and colleagues turned out to wish Sears well. Sears' family also attended: his wife, Beverly; son, Wes; daughters, Susan and Emily; son-in-law, Dave; father-in-law, Leonard Miller; and Miller's wife, Hassie.

Sears will continue working for GTRI on a part-time basis. In that role he will teach short courses in electronic warfare and will help prepare a strategic plan for GTRI's next five years. George Harrison will follow Sears as lab director of ELSYS.

"One of the things that sets Bud apart is his vision," said Bill Rogers (ELSYS). "He saw things that needed to be done and took risks to make them happen. We are fortunate that he is going to continue in that role."

"When we were talking about the criteria for the person who was to replace Larry Holland as the lab director of ELSYS, we mentioned things like contract development, organizational skills, management ability, people skills and technical knowledge," added Gerald Smith, interim director of Research Operations. "Bud is one of those rare people who possesses them all."

"I don't have words adequate for saying thank you to you all," Sears said after the presentations. "Many of you I've had the opportunity to bring on board, and I'm grateful for all the years that we've spent together.

"I've come to know over time how different this place is," continued Sears. "There is truly something special about GTRI and the people who work here."

Congratulations to Our 1997 Retirees

Thank you for your years of service!

Name	Title	Lab/Unit	From	To
Nick Currie	PRE	SEAL	06/12/67	06/30/97
Jim Echard	PRE	SEAL	11/01/76	07/01/97
Lee Edwards	PRS	ELSYS	02/03/64	10/31/96
Joe Harrison	SRA	APO	05/03/82	05/01/97
Joe Parks	Director	SDL	02/13/78	06/28/96
Harry Ross	Property Control Mgr.	SSD	07/02/79	08/01/96
Bud Sears	Director	ELSYS	07/01/67	07/01/97

Promotions Announced

Congratulations to the following employees on their achievements and advancement!

Name	Lab/Unit	From	To
Eric Barnhart	ITTL	SRE	PRE
Daniel Campbell	EOEML	RS II	SRS
Charles Carstensen	EOEML	RS II	SRS
Charles Chapman	SDL	RE II	SRE
John Estrada	SEAL	RE II	SRE
Jeff Hallman	ELSYS	RT II	SRT
Wendy Jones	EOEML	RE I	RE II
Eliesh O'Neil Lane	EOEML	RS I	RS II
Wayne Taylor	ARL	RE I	RE II
Arthur Wickman	EOEML	RS I	RS II
Neil Lareau	ELSYS	RE II	SRE
Robert Newsom	EOEML	RT II	SRT
Brian Shirley	STL	RE II	SRE
Bob Schmitter	EOEML	RS II	SRS
Lisa Sills	ITTL	RS II	SRS
Brent Wagner	EOEML	RS II	SRS
John Wandelt	ITTL	RS II	SRS
Roc Tschirhart	EOEML	RS II	SRS

GTRI Greetings

Welcome to some of our newest employees!

Ten Good Things We Know About Mitch Ramsey

Mitch Ramsey

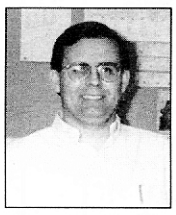
1. Mitch is an accounting manager for GTRI's Fiscal Services Department.
2. His office is responsible for payroll processing, shared appointments and consultant and per diem expenses.
3. Mitch also oversees the processing of travel expense reports and budget/journal entries and is involved in the procurement card (P-Card) program.
4. Prior to his career at GTRI, Mitch spent three years as an auditor for KPMG Peat Marwick.
5. Most recently, he worked as a supervisory accountant for the federal government for 6 1/2 years.
6. He is a certified public accountant (CPA), as well as a certified government financial manager (CGFM).
7. Mitch grew up in Antigua and the U.S. Virgin Islands before moving to Alabama in 1980.
8. He is a graduate of the University of Alabama in Huntsville, where he received a bachelor's degree in business administration.
9. Mitch lives in Powder Springs with his wife, Yvonne. They have one son, Mitch Jr.
10. In his free time, he volunteers with a Caribbean association and St. Jude's Episcopal Church in Marietta. He also enjoys playing tennis.

Ten Good Things We Know About Deborah Hightower

Deborah Hightower

1. An administrative secretary, Deborah has been working in the Signatures Technology Laboratory (STL) since December.
2. Deborah is responsible for supporting the Electromagnetic Materials and Structures (EMS) Division's administrative needs. She provides customer service, handles travel and expense reports, creates forms and assists in proposal preparation.
3. She jokes that her most challenging duty is keeping up with her busy boss.
4. Before she started work at GTRI, Deborah spent two years as the recruiting coordinator for a rehabilitation services company.
5. She also worked for a variety of different companies while with a temporary agency for four years. Deborah describes those years as an adventure because of the opportunity to work at so many different companies and meet so many wonderful people.
6. The proud mother of four, Deborah has two sons, Stephen and Antonio, and two daughters, Chantennel and Marquita.
7. She has been happily married for 20 years to her husband, Henry, a rug specialist.
8. In her spare time, Deborah says she loves reading, playing volleyball, plants, baking and helping people.
9. A talented singer, she is part of several choirs and a local gospel group that is currently producing its first recording.
10. A volunteer for the Olympics and Paralympics, Deborah also performed in the choir during the Opening Ceremony of the Paralympic Games.

Ten Good Things We Know About Bryan Black



Bryan Black

1. Bryan has been a Research Engineer II for the Electro-Optics, Environment and Materials Laboratory since January.
2. Bryan works with the 7CI Consultation Program, which provides free safety consultation to small businesses to ensure their compliance with Occupational Safety and Health Administration (OSHA) standards.
3. Before coming to GTRI, Bryan worked as the corporate safety specialist for Hayes Mircrocomputer Products, Inc.
4. He also spent four years at Mitsubishi Consumer Electronics America, Inc., as a safety and ergonomics engineer.
5. He holds a bachelor's degree in mathematics from Harding University in Searcy, Ark.
6. Bryan also is a graduate of Auburn University, where he earned a master's degree in industrial engineering.
7. A native of St. Louis, Mo., Bryan has lived in the Atlanta area for five years.
8. He and his wife, Leanne, live in Lawrenceville.
9. They have two daughters, four-year-old Meghan and newborn Alyson.
10. In his free time, Bryan likes playing golf, doing woodworking and playing with computers.

Home of the 1996 Olympic Village
Georgia Tech Research Institute

Personnel News

New Hires

AIST welcomes **Wayne Dilling**, Technical Project Director. Machine Shop welcomes **Steven Sheffield**, Instrument Maker. SDL welcomes **Douglas Burkhardt**, Computer Services Specialist I; **Rebecca Carvin**, Student Assistant; **Chris Elliott**, RE I; and **Rebecca Rieck**, Student Assistant.

Moving On

Russell Ray (EOEML); **Michael McKeon** and **Patsy Pye** (SDL) are moving on.

School's Out!

Congratulations to some of our recent graduates:

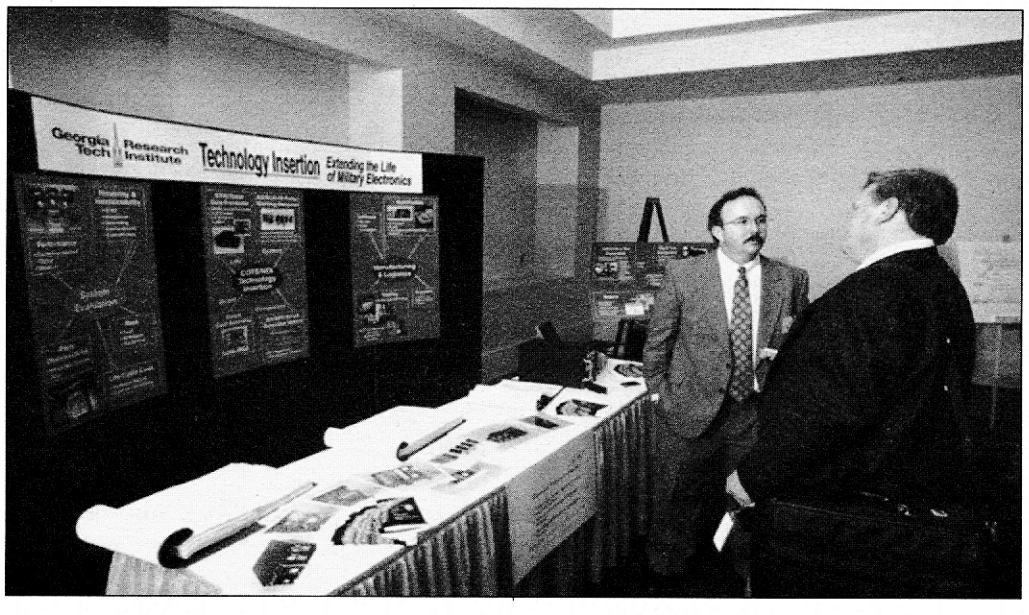
Chris Powell (Mailroom) recently completed an associate's degree in computer science at DeKalb College. He continues work on his bachelor's degree.

Guillermo R. Villalobos (EOEML) recently completed his doctorate in materials science and engineering. His thesis was titled "Strength Enhancement of Lithium Aluminosilicate Containing a Ta205 Second Phase."

Christian Stoffers (EOEML), finished his Ph.D. in physics in June. His thesis addressed "Saturation Kinetics of Low Voltage Phosphors."

Wounjhang Park (EOEML), earned a doctorate in physics spring quarter. His thesis discussed "Optical Properties of Thin Film Phosphors."

Focus on Folks



Neil Lareau (left) discusses GTRI's technology insertion capabilities at the late June Industry Day. A total of 40 external guests representing more than 20 firms and organizations attended. (Photo by Stanley Leary)

Focus on Folks

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Professional Activities

Electro-Optics, Environment and Materials Laboratory

Claudia Huff gave the June 1 keynote presentation at the National Institute for Technology Training held at Mississippi State University in Starkeville. She addressed "Learning About Technologies in the Future." Huff and **Dara O'Neil** were judges for the Society for Technical Communication at the 1997 International Science and Engineering Fair for high school students in Louisville, Ky., Apr. 12-14. At a June 6 meeting of the National Sponsored Programs Administrators Alliance of Historically Black Colleges and Universities, Inc., Huff discussed "Collaborations and Alliance Building."

Steve Hays and **Kirk Mahan** conducted an OSHA Overview and Safety Awareness Seminar for the Georgia Telephone Association on May 28 in Macon, Ga. Hays also presented a paper on Contractor Safety at the 1997 Safety Workshop for the Poultry Industry in Atlanta on May 29. Mahan gave a presentation for the U.S. Department of Labor's Peachstate 100 Program on June 27.

Paul Schlumper gave a presentation on the ISO 14000 International Environmental Management System Standards at the Institute of Industrial Engineers (IIE) annual conference in Miami, Fla. He also published a paper in the proceedings for this conference, along with co-authors **Roc Tschirhart** and **Jim Walsh**.

John Nemeth presented a paper and talk on "The Hazardous Substance Research Centers: Innovative Research and Cost-Effective Cleanup" for Proceedings of the 22nd Annual Conference, National Association of Environmental Professionals, in Orlando, Fla., May 18-23. He spoke at the National Site Assessment Conference in San Francisco on June 11, discussing "Technical Outreach Services for Communities: The Role of HSRCs."

Henry Paris, **Yancy Riddle** and **Tom Sanders** (MSE) presented a paper entitled "5XXX Alloy Design for Aerospace Products" at the ASM International 8th AeroMat Conference, May 12-15 in Williamsburg, Va.

Nancy Davis presented "Teaching Over the Internet: A Low-Tech Approach with High-Impact Results" on June 24 at the 7th DoD High Performance Computing Users Group Meeting.

Jim Demmers was one of three presenters in a panel discussion on interactive media development May 21 at the Society for Technical Communication's monthly meeting in Atlanta.

Myrtle Turner has been certified by the National Environmental Training Association's Board of Examiners as a Certified Environmental Trainer in Occupational Safety and Health.

Wounjhang Park, **Tom Jones**, **Silke Schon**, **Wusheng Tong**, **Brent Wagner** and **Christopher Summers** presented a paper entitled "Luminescent Properties of Mn Ions in Homogeneously and Delta-Doped ZnS:Mn" at the American Physical Society's March 17-21 meeting in Kansas City, Mo.

The following papers were presented at the Third International Display Workshops, Kobe, Japan, Nov. 27-29, 1996:

"Recent Research Trends in Display Phosphors," **C. J. Summers**.

"Photoluminescence Properties of SrS:Ce Thin Films Grown by Molecular Beam Epitaxy," **W. Park**, **T. Yang**, **M. Chaichimansour**, **W. Tong**, **B. K. Wagner** and **C. J. Summers**.

"Low Voltage Saturation Effects in Y2O2S:Tb," **C. Stoffers**, **S. Yang**, **S. M. Jacobsen**, **B. K. Wagner**, **J. Penczek** and **C. J. Summers**.

The following work was presented at the Second International Conference on Science and Technology of Display Phosphors in San Diego, Calif., Nov. 18-20, 1996:

"Synthesis and Characterization of SrS:Ce/SrTe:Ce Blue Phosphor Powders," P. D. Rack, P. H. Holloway (Univ. of Fla.), **W. Park**, **B. K. Wagner**, **J. Penczek**, **C. J. Summers** (Ga. Tech), W. L. Warren and K. Vanheusden (Sandia).

"Process and Material Optimization of Eu:Y2O3 Produced by Co-Precipitation; **J. A. Cooper**, **H. G. Paris**, **S. Yang**, **C. J. Summers** and **D. N. Hill**.

"Luminescence, Adsorption and Site Symmetry of Ce Activated SrGa2S4 Phosphors," W. L. Warren, K. Vanhuesden, M. A. Rodriquez, C. H. Seager, D. R. Tallant (Sandia), P. D. Rack, P. H. Holloway (Univ. of Fla.), **B. K. Wagner** and **C. J. Summers** (Ga. Tech).

"Improved Photoluminescent Properties of Zns:Mn Due to the _-Doping Process," **S. Schön**, **M. Chaichimansour**, **W. Park**, **T. Yang**, **B. K. Wagner** and **C. J. Summers**.

"Formation of Stacking Faults in ZnS Thin Film Epitaxially Grown on GaAs (001)," **M. Arnold**, **Z. L. Wang**, **W. Tong**, **B. K. Wagner**, **S. Schön** and **C. J. Summers**.

"Properties of Phosphor Particles Y2O3:Eu Prepared by a Low-Temperature Technique," **J. D. Jiang**, **Z. L. Wang**, **F. L. Zhang**, **H. G. Paris** and **C. J. Summers**.

Brent Wagner was invited to present "Phosphor Technology Center of Excellence: Field Emission Displays," at the DARPA HDS Information Exchange Meeting in Arlington, Va., Mar. 24-26.

"Luminescence, Absorption and Site Symmetry of Ce Activated SrGa2S4 Phosphors" by W. L. Warren, K. Vanheusden, M. A. Rodriguez, C. H. Seager, D. R. Tallant (Sandia), P. D. Rack, P. H. Holloway (Univ. of Fla.), **B. K. Wagner**, **C. J. Summers** (Ga. Tech) and P. N. Yocom (Sarnoff), was published in Applied Physics Letters, 70 (1997).

Sensors & Electromagnetic Applications Laboratory

Mike Kastle co-authored "Recent Developments in NCTI Synthesis Effort: Engine Prediction Improvements," presented at the May 8 Electro-Magnetic Code Consortium (EMCC) meeting at Wright Patterson Air Force Base.

Gene Greneker presented "Millimeter Wave Safety Warning System for In-Vehicle Signing" at NATRAD 97, held in Syracuse, N.Y. during May. He also presented "Non-Contact Heartbeat Signature Measurement for Possible Personnel Biometric Identification" at the 13th Annual ADPS Symposium and Exhibition on Security Technology, June 9-12 in Virginia Beach, Va.

Welcome!

Professor **Rhim Y. Lee** of Dankook University/Korea, is studying the characterization of Y2Sio5: Ce Phosphor for field emission devices in the Phosphor Technology Center of Excellence (EOEML) until Feb. 1998. He is an adjunct senior research scientist.

Personal Notes

Wedding Bells

Casey Brown (SDL) and **Susan Carcione** (AERO) were married on May 3.

Carey Floyd's (SDL) daughter, Jill Floyd, married Steve Witter May 17.

Our Sympathy...

...to **Gary McMurray** (EOEML), whose mother died May 9 in Nashville, Tenn.

...to **Bill Koehler** (SDL), whose father died recently.

...to **Ashley Slappy** (SDL), whose mother died June 18.

...to **Shayne Kondor** (AERO), whose mother died June 28.

...to **Anita Edwards** (SDL), whose father died May 18.

Cradle Roll

Mindy and **Jeff Mendoza** (AERO) welcomed a son, Nicholas Riley, on July 6.

Kudos

J. Martin Lett, son of **Jerry Lett** (MAPS), graduated from the University of Georgia Law School on May 24.