

# The GTRI Connector

## Beautiful Compensations

It is one of the most beautiful compensations of life—no man can sincerely try to help another without helping himself.

—Ralph Waldo Emerson

Whoever is happy will make others happy too.

—Anne Frank

Kind words can be short and easy to speak, but their echoes are truly endless.

—Mother Theresa

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## Reorganization Leadership Plans Finalized

By Lea McLees, RCO

GTRI is now officially operating according to its new structure, just one month after the plan was approved by Georgia Tech President John Crecine and announced to employees.

Research operations consolidated from 18 labs into eight on August 16. Related personnel and financial details are expected to be complete by September 1. Top leaders of GTRI were announced in July, with lab directors' names added during the first week of August.

GTRI Director Richard Truly expressed appreciation for employee response to the reorganization process.

"I know that any restructuring of a complex organization — especially when the necessary changes are extensive — can result in uncertainty or apprehension among the organization's staff," he said. "I want to thank each of you for your patience and understanding during this process. The resulting GTRI will be much stronger and better positioned to continue growth and progress."

Heading the labs are Robert Cassanova, Aerospace Sciences Laboratory (AERO); Larry Holland, Electronic Systems Laboratory (ELSYS); Richard Stanley, Huntsville Research Operations (HRO); Randy Case, Information Technology and Telecommunications Laboratory (ITL); Robert Hyde, Electro-optics, Environment and Materials Laboratory (EOEML); Robert Trebits, Sensors and Elec-

*GTRI Director Richard Truly and Vice President for Strategic Planning Tim Gilmour, center, congratulated 44 of the 70 GTRI employees who completed a 20-videotape series on the Total Quality Management principles of W. Edwards Deming. The group received certificates at the August 2 Senior Staff meeting. An additional 26 employees not pictured completed the program, as well. See page 7 for a complete list of the course graduates. (Photo by Stanley Leary)*

## GTRI One of Five Winners in Quality Competition

GTRI is one of five "Georgia Tech Quality Champions" named in mid-August as part of Tech's goal to further Continuous Quality Improvement practices on campus.

The College of Engineering, the School of Management, the Office of Human Resources, the Office of Minority Educational Development and GTRI were chosen from

10 applicants based on proposals submitted to Georgia Tech's Quality Council. The council wanted to identify units on campus that have a strong commitment to Continuous Quality Improvement (CQI), said Tim Gilmour, Vice President for Strategic Planning and coordinator of CQI at Georgia Tech.

"We were looking for pacesetters who want to take on CQI in a comprehensive way, and who want to serve as models in coming years," Gilmour said. "We expect that these units will work with other units in the future and we'll see some real quality successes."

The August 11 awards are part of a larger strategy to incorporate CQI into Georgia

*Continued on page 3*

*Continued on page 6*

## Observed & Noted

Meet the directors of GTRI's eight new research laboratories. *Turn to page 2 to read their profiles.*

Interested in the latest contract development activities? A new feature lists selected new contracts. *The box appears on page 2.*

Overhead rates have become a matter of great concern and confusion in the past several years. *To learn more about GTRI's rate structure, read the story on page 3.*

With new laboratories comes a whole new set of acronyms to learn. *The list is on page 3.*

Georgia Tech is part of a team that will manage Sandia National Laboratories in Albuquerque, New Mexico, and several GTRI people played important roles in winning this new opportunity. *Read about this new activity on page 4.*

Georgia Tech has become headquarters for a new \$10 million Phosphor Technology Center of Excellence, and a GTRI research scientist will serve as director of the organization. *Turn to page 4 for the story.*

Computer support representatives (CSRs) can help

pick up the pieces if your computer crashes. *See page 5 to learn more.*

In May, 61 articles about Georgia Tech research appeared in publications with a combined circulation of over 8.6 million. *See a sample of publications by turning to page 6.*

Seventy GTRI employees recently finished "The Deming Approach to Total Quality Management" short course. *Group members are listed on page 7.*

**News  
&  
Notes**

**Meet the Lab  
Directors**

**Robert Cassanova, Aerospace Sciences Laboratory**

Holds bachelor's, master's and doctoral degrees in aerospace engineering. Employed at Georgia Tech since 1967, at GTRI since 1977. Previously director of Aerospace Laboratory. Interested in aerodynamics of ground vehicles, aerodynamic high lift devices, computational fluid dynamics, acoustics, rotorcraft, unmanned aerial vehicles, smart structures, and transportation.

**Larry Holland, Electronic Systems Laboratory**

Holds bachelor's and master's degrees in electrical engineering. Employed at GTRI since 1972. Previously director of Electronic Support Measures Laboratory. Interested in electronic warfare receiver/processors, radar warning receivers, specific emitter identification, EW test systems, automatic control systems, missile guidance and control, communications, simulation.

**Richard Stanley, Huntsville Research Operations**

Holds bachelor's degree in mechanical engineering, master's in R&D systems management. Employed at GTRI since 1984. Previously director of Huntsville Research Lab. Interested in ground-to-air missile systems, interactive system simulations, remotely controlled vehicles.

**Randolph Case, Information Technology and Telecommunications Laboratory**

Holds bachelor's degree in chemistry, master's degrees in counseling psychology and systems management. Employed at GTRI since 1987. Previously director of Computer Science and

Information Technology Laboratory. Interested in information and decision support systems applications for Command/Control/Intelligence, enterprise integration, transportation, manufacturing technology.

**Robert Hyde, Electro-optics, Environment, and Materials Laboratory**

Holds bachelor's and master's degrees in physics, doctorate in astronomy. Employed at GTRI since 1978. Previously director of Electro-Optics Laboratory. Interested in optical and infrared systems, atmospheric science, educational technology.

**Robert Trebits, Sensors and Electromagnetic Applications Laboratory**

Holds bachelor's, master's and doctoral degrees in physics. Employed at GTRI since 1965. Previously senior research scientist. Interested in radar reflectivity of clutter and targets, radar signal processing, synthetic aperture radar system applications, radar system analysis.

**John Meadors, Signatures Technology Laboratory**

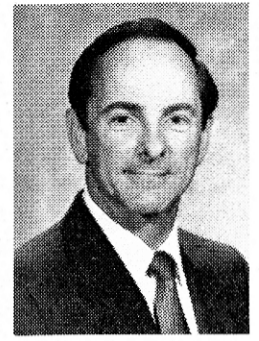
Holds bachelor's, master's and doctoral degrees in physics. Employed at GTRI since 1985. Remains director of this lab. Interested in low observables technology, advanced signature measurement systems and instrumentation, time domain electromagnetics, and electro-optic/infrared countemeasures.

**Joe Parks, Systems Development Laboratory**

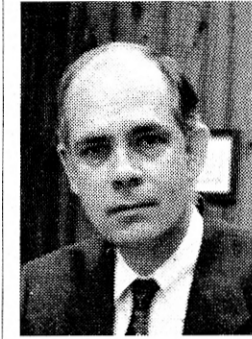
Holds B.S. in physics, J.D., and has done graduate work in physics. Employed at GTRI since 1978. Previously director of Threat Systems Development Laboratory. Interested in program management of large radar systems; co-inventor on three radar-related patents.



**Bob Cassanova**



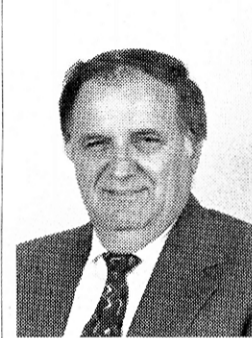
**Dick Stanley**



**Randy Case**



**Bob Trebits**



**Joe Parks**



**Larry Holland**

*Photographs were not available by press time for Bob Hyde and John Meadors.*

**SELECTED JULY 1993 AWARDS**

Title	Principal Investigator	Sponsor	Funded Amount
MH-53J Structural Modification Flight Test Support	Crawford, C.	Air Force	39,800
Quick Reaction Multicolor Printer (ORMP) Program Support	Pennywitt, K.	Martin Marietta Corp.	40,000
Software Arch. & Dev. for FORSCOM Automated Intelligence Support System (FAISS)	Atha, J.	Army	85,708
TII Design Support: Quiet Front Station Protector Development	Rohrbaugh, J.	TII Industries, Inc.	51,617
Imaging Tracker Countermeasures	Mullikin, A.	Navy	140,000
Development of GSG/GIS Computer Platform & Data Layers	Rowan, M.	ERDA	132,323
The Development & Implementation of a Prototype Ride Share System Using ...	Rowan, M.	GA DOT	40,000
ALR-56M ISS Option Phase	Ingle, R.	TRW Inc.	323,184
IEW System Threat Environment Testing	Brooks, J.	Air Force	300,000
Formaldehyde and Ambient VOC Emission From Paint and Biocides	Bayer, C.	Troy Chemical Corp.	39,433
MLRS ERR Aerodynamic Support	Carnesi, R.	Army	49,995.97
MIDAS Upgrade for the U.S. Army MLRS Systems	Schaefer, L.	Army	144,976.58
Target Identification with Multi-Role Survivable Radar (MRSR)	Cohen, M.	Army	191,599.44
Hypervelocity Weapon System Field Experiment I	Holder, E.	Army	124,114.76
Enhanced Signatures & Countermeasures Analysis for GBS	Tate, D.	Army	29,415.82
Advanced Topside Electromagnetic Modeling Capabilities	Estrada, J.	NE Consort for Engr. Educa.	33,000
EW Techniques Analysis	Lilly, L.	Air Force	326,235
EW Techniques Analysis/RF	Lilly, L.	Air Force	370,000
Design Trade Study for Missile Guidance Electronics Unit	Strike, T.	Army	64,243.14
MMW Multipath Model Validation	Saffold, J.	Army	64,321.26
XM81 MMW/IR Obscurant System Performance Analysis	Perry, B.	Army	146,505
Joint Stars Modeling & Data Reduction Task Execution Plan	Cochrane, W.	Army	490,000
JStars EWVA ECCM Task Execution Plan	Cochrane, W.	Army	415,041
Tactical Strike Imagery EWVA Task Execution Plan	Cochrane, W.	Army	483,002
Radar Hardware Development Analysis	Belcher, M.	Army	340,590
Comparison of Tracking Algorithms - Phase II	Pringle, L. & DeMarco, J.	US Dept. of Defense	247,641
Percolating Systems	Moore, R.	US Dept. of Defense	398,508
XM-155 Tar Transmitter & Acquisition Antenna Development	Camp, S.	Army	1,176,015.52



## Quality

From page 1

Tech's curriculum, operations and research. CQI is a philosophy, a set of principles and tools that result in a product or service which consistently meets customer requirements — giving the customer something useful at a good price.

The five quality champions were selected with the help of an advisory committee to the quality council. The committee looked for criteria such as commitment to CQI principles, soundness of strategy, and strategic importance of each unit to Georgia Tech. Among the benefits the five units will receive are access to a full-time quality specialist Georgia Tech will hire. In addition, researchers who are interested in CQI studies will be eligible for seed research grants in their areas of expertise. Part of the funding for the individual research awards comes from a five-year grant awarded to Georgia Tech in October 1992 by IBM.

Associate Director of Enterprise Planning Charlie Brown prepared GTRI's proposal. GTRI's Director of Quality Assurance Fred Cain and Richard Truly presented the proposal to Gilmour at GTRI's August 2 Senior Staff Meeting.

Quality improvement is not a short-term interest for GTRI, says Associate Director Pat O'Hare. A total of 70 GTRI employees led by Cain earned certificates for viewing and discussing implementation of a series of 20 videotapes on W. Edwards Deming's TQM philosophy. At least a dozen employees are set to take Jane Ammons' (ISYE) graduate course in quality management. In addition, Brown's job in the reorganized GTRI — leading enterprise planning — will include CQI. He is charged with ensuring that selected GTRI processes become even more effective, efficient and adaptable, and that customer satisfaction is maintained and improved.

## New Laboratories, New Abbreviations

Here is a short list to help you learn the names and abbreviations of the new labs, and who is working in each one:

**Aerospace Sciences Lab (AERO):** AERO, SOF program

**Huntsville Research Operations (HRO):** Same members

**Electronic Systems Lab (ELSYS):** ESML, CAL, CMDL and EWTA, ECTIC program

**Information Technology and Telecommunications Lab (ITL):** CSIT, COM

**Electro-optics, Environment and Materials Lab (EOEML):** EOPSL, ESTL, MSTL

**Sensors and Electromagnetic Applications Lab (SEAL):** RSA, MATD, MAL/Cobb, EEEL

**Signatures Technology Lab (STL):** STL, MAL/campus

**Systems Development Lab (SDL):** TSDL, RIDL



**Principal Research Engineer Rob Michelson, left, presents a plaque to Georgia Tech student Mark Gordon, leader of Georgia Tech Aerial Robotics Team Number One. The team placed first in the Association for Unmanned Vehicle Systems' 1993 International Aerial Robotics Competition, held in June on the Georgia Tech Campus. A total of 25 teams competed this year. Michelson is president of the association. (Photo courtesy of Rob Michelson)**

## Understanding Overhead Rates

*(This is the first installment of a three-part series explaining overhead rates, how they are figured, and why they are becoming complicated.)*

By Lea McLees, RCO

All the concern and discussion about overhead rates during the past year or two may have some readers wondering—or downright confused—about how the rates are set. The process can be difficult to understand, especially now, says J.W. Dees, Director of the Office of Contract Administration (OCA).

"The overhead situation right now is less clear than it has ever been in the history of Georgia Tech," Dees said in late June. At that time he and OCA Associate Director Duane Hutchison were involved in intensive discussions of a projected overhead rate for FY 94 with the Office of Naval Research (ONR), which represents the federal government in rate negotiations with Tech.

A brief explanation of how overhead rates work follows.

### What are Overhead Rates?

**Overhead rates** are calculated to recover expenses associated with conducting research, such as building maintenance, equipment and contract administration. The current preliminary rates for FY 94 are 45 percent for research at GTRI, 37 percent for research in all other units, and 33 percent for public service in all units.

Overhead "collected" is reimbursement for expenses already incurred and paid from whatever source two years prior to actual "collection." Once "collected," these monies are general funds and usable for any purpose since, at that point, they belong to Georgia Tech. However the "collected" funds are usually spent in support of research, and are split among a number of parties.

About 22 percent of the total overhead collected goes to the Georgia Tech Research Corporation, which provides money to researchers for equipment, matching funds, moving expenses, foreign travel and other needs — items for which state funds either are not available or cannot be used. The remaining 78 percent is returned to Georgia Tech and a significant part is sent to the labs, schools and departments that generated the sponsored research. The amount returned to these units varies, especially between GTRI and resident instruction units. Vice President for Research Demetrius Paris indicated that in resident instruction for the current fiscal year, a portion of indirect recoveries is returned to research units, including the Office of Interdisciplinary Programs (OIP) Centers, to cover research management and support costs. A portion is retained centrally

to pay part of the Centennial Research Building (CRB) rent, OCA expenses, and other central administration activities such as grants and contracts accounting, procurement and payroll. In GTRI, indirect recoveries are combined with other revenues and used for laboratory budgets, research equipment, STGC projects, plant operation costs, utilities and maintenance, leases on CRB and the Cobb County Research Facility, funding for service groups, etc.

### How Are Overhead Rates Calculated?

Overhead rates are figured by dividing **indirect costs** by **modified total direct costs**. Indirect costs, the numerator of the fraction, cover expenses for the use of research space and equipment, plant maintenance, utilities, telephones, the library and administration (such as the Office of Contract Administration, the Business Office, the Vice President for Research, the Office of Academic and Research Support, etc.) and departmental administration. Only a fraction of these expenses is allocated to research, so that only the expenses directly benefitting research are included. Because many central administration expenses, such as payroll, accounting, procurement and the library benefit many activities on campus, only a portion of these expenses is included as indirect costs of research.

The largest component of the "administrative" indirect cost pool—80 percent—is **indirect expenses of sponsored projects** (IESP). These are the "H" funds spent by research units, labs and schools for administration of research within their units. This is the cost pool capped by the federal Office of Management and Budget.

**Total direct costs** are expenses attributable directly to projects; they include such expenses as salary and wages, travel, materials, supplies, equipment, and subcontract costs. Those costs are **modified** for use in the denominator of the fraction by excluding equipment and subcontracting costs over \$25,000.

### How Has The Rate Calculation Changed?

Until about 1980 the government only included salaries and wages in the denominator of the fraction—thus collecting overhead only on those items—and that worked well, Dees said. However, the government adopted the modified total direct costs explained above after years of complaints from Congress that university overhead rates were too high. The Office of Management and Budget decided around 1980 to start including travel and other items in the total direct costs figure, making the denominator of the fraction larger, and reducing university overhead rates. However, the indirect expenses in the numerator of the fraction did not decrease—only the resulting rate decreased, not overhead expenses. This rate reduction was made despite the fact that private industry's overhead rates are much higher than academia's.

**Next Month:  
Why Overhead  
Rate-Setting  
Has Become So  
Complicated**



## Focus on GTRI's Future

*Sam Blankenship, in photo at right, did a good bit of the leg-work that is making Georgia Tech's involvement at Sandia possible. (Photo by Lea McLees)*

### Tech Part of Team That Will Manage Sandia

By Lea McLees, RCO

Sandia National Laboratories in Albuquerque, N.M. will be managed and operated by a new prime contractor starting October 1—and Georgia Tech will be part of the effort.

Martin Marietta of Bethesda, Md. won the five-year, approximately \$9 billion contract on July 27. Martin is the largest defense electronics contractor in the U.S., and has experience running U.S. Department of Energy (DOE) labs. AT&T, Martin's predecessor, has operated the lab since its inception in 1949, but decided it no longer wanted the job.

Martin was competing against Battelle, a non-profit industrial research company based in Ohio, when the decision was made. The two were the top finalists out of seven original applicants for the job.

Georgia Tech officials expressed pleasure that Martin Marietta was chosen for the job, and that Tech and fellow universities have a chance to help implement DOE's vision for Sandia.

"Tech will be involved in a variety of educational and research activities with its partners in this effort," said Georgia Tech Executive Vice President Mike Thomas. "We already have excellent relationships with Sandia National Labs. For example, the National Center for Photovoltaics Research at Tech receives funding via Sandia."

Georgia Tech is part of a consortium called University Associates, led by New Mexico State University (NMSU). The consortium will work with the management/operations team Martin assembled and includes the University of Texas/Austin, Texas



A&M, Louisiana State University, and several smaller New Mexico schools. Consortium members already have performed millions of dollars of Sandia-sponsored research.

The group was well-positioned during the negotiations, thanks in part to Georgia Tech efforts. NMSU Dean of Engineering Derald Morgan and GTRI Senior Research Scientist Sam Blankenship negotiated places for the consortium with six of the seven contractors who were originally vying for the Sandia job.

Chief Scientist Devon Crowe of GTRI suggested the Sandia opportunity to Georgia Tech's administration in 1992. Tech President John P. Crecine decided Georgia Tech should pursue it for several reasons, Thomas said.

"Among these are the opportunities to expand our research portfolio to include more non-DOD activities, and to enhance our efforts in recruiting minority students into science and engineering," he said. "Another focus will be in technology transfer from Sandia National Labs to U.S. industry. Georgia Tech already has one of the largest roles in the country in such efforts."

Crowe directed the effort to get Georgia

Tech involved, and Blankenship did a good bit of the legwork. Blankenship has many professional contacts in New Mexico. In addition to his duties as senior research scientist, he works part-time developing opportunities for Georgia Tech in New Mexico through GTRI's Program Development Office.

Blankenship and Crowe are helping to negotiate the role of Georgia Tech and its fellow universities in a variety of meetings with the Martin Marietta managers added to Sandia's staff. Among the potential benefits of Sandia interaction are support for graduate students, faculty exchanges, and access to equipment and facilities not available on campus, Blankenship said, as well as expanded joint research opportunities.

"Another major theme of the Martin proposal was technology transfer," Blankenship said. "They will set up a separate office, an incubator where they will find commercial applications for Sandia technologies. Small and medium-sized businesses can get help from the center in producing products. We believe that is a place we can play, as well."

As an additional benefit, Blankenship also met many potential business contacts for Georgia Tech while negotiating with potential prime contractors. For example, NMSU and Georgia Tech have teamed on a number of project proposals.

Tech will need to present Sandia with research endeavors that are mutually beneficial to both Sandia and Tech, Crowe emphasized.

"We will have to spend time earning the opportunities," he said.

Researchers working on or proposing research that they believe Sandia might be interested in may contact Blankenship at 894-7311 or send e-mail to sam.blankenship@gtri.gatech.edu.

## GTRI to Manage Phosphor Research Center at Tech

By Mark Hodges, RCO

The Advanced Research Projects Agency (ARPA) has selected Georgia Tech as headquarters for its new Phosphor Technology Center of Excellence, and a GTRI researcher will manage the operation.

This three-year, \$10 million program will stimulate research, technology transfer, and education in phosphors, a key enabling technology for high-definition television (HDTV) and other uses of enhanced-resolution displays.

The center will bring together university and industrial members in an effort to speed up the transfer of phosphors technology from the laboratory to the commercial market.

The leader of this new program is Chris Summers, a GTRI fellow and principal research scientist whose specialty is electronic materials. Michael J. Kelly, director of Tech's Manufacturing Research Center, leads the center's liaison between industrial and university members.

"Recently, America has lost most of its presence in the display-manufacturing industry," says Summers. "The aim of this new center is to help U.S. manufacturers compete successfully in the market for high-definition displays."

HDTV is the most highly publicized application of enhanced-resolution displays, but strong potential also exists for vehicular dashboard controls, medical instruments, conventional computer screens, virtual environment displays, and industrial process control panels.

Phosphors are materials that glow without any increase in temperature. Luminescence occurs after the phosphor has been excited by a flow of electrons, an electric field, or light itself. Though the technology for most current uses of phosphors is mature, the demands of current and future displays require materials and devices with improved resolution, brightness, energy efficiency, and color.

Manufacturing problems also must be addressed so that new low-voltage phosphor device designs are reproducible in quantity and result in affordable, stably operating products.

Five U.S. universities will carry out the center's mission: Georgia Tech, the University of Georgia, the University of Florida, Oregon State University, and Pennsylvania State University. Joining these institutions is the David Samoff Research Center, an organization with a strong background in the development and commercialization of phosphors. Another participant is the American Display Consortium, a group composed of 10 small companies.

At Tech, the program will involve several GTRI labs, the Manufacturing Research Center, and the Schools of Materials Engineering, Physics, and Electrical and Computer Engineering.

"The degree and caliber of technical participation we have attracted is outstanding," says Summers. "This center should give the phosphor industry a major boost."

The largest source of funding for the center's first three years of operation is the \$10 million

provided by ARPA. However, its university members are contributing \$1.063 million, and members of the American Display Consortium are adding another \$750,000. In years four through six of the center's existence, ARPA has the option to continue funding at a level of \$8.5 million. The State of Georgia has committed itself to contribute \$3 million during this period.

The research agenda in support of ARPA's high-definition display initiative will focus on four technical areas: cathode ray tubes, thin-film electroluminescent displays, plasma display panels, and field emission displays.

Georgia Tech researchers will participate in center programs aimed at improving low-voltage thin-film electroluminescence displays (TFELs), field emission display films (FEDs), and thin-film cathode ray tube films (CRTs). In addition, they will develop novel phosphor materials and structures as well as new device and array processing techniques.

The center will use a variety of approaches for transferring phosphor technology to industry, including periodic short courses and seminars as well as the creation of a technical information database on phosphors.

The center will stimulate expertise in phosphor technology through a variety of educational initiatives. The majority of its research projects will involve active participation of graduate students who are pursuing master's or doctoral degrees in materials, physics, chemistry, or other appropriate disciplines.



## CSRs Offer Remedies for Your Computer's Ills

By Lea McLees, RCO

Maybe strange hieroglyphics are dancing across your computer monitor, hungrily devouring that journal article you have so painstakingly crafted. Or perhaps you've suddenly lost e-mail access and are faced with typing, printing and personally distributing 200 copies of a memo across campus within one hour.

Going ballistic—or bananas—will not solve either problem. Placing a call to that pivotal person, your computer support representative (CSR), probably will, says GTRI Computer Coordinator and CSR Tony White.

"Call a CSR once you know everything is turned on and all parts of the system are plugged in," he said. "CSRs are intimately familiar with the hardware, software, budget and direction of their labs."

Consider the CSR a physician for sick hardware or software, says Research Technologist and CSR Karen Moss.

"Once the symptoms have been determined and well-defined, the diagnosis can be made," she said. "The next step is to fix the problem so co-workers can feel as little pain—computer downtime—as possible."

The CSR network, modeled on a similar system at Brigham Young University and begun at Georgia Tech early in 1993, puts computer expertise within quick reach of users around campus. It improves Georgia Tech's system of computer coordinators, said OIT Associate Director Linda Cabot, who oversees Client Services.

"The computer coordinators in each lab and department received monthly computer usage reports," said Cabot. "We changed that system because people who get the reports might not know much about computers."

The new system also matches the growing distribution of computing power on campus from a few shared mainframes to a myriad of personal computers in almost every building.

"We followed the same path and distributed our advocates," she said.

Each lab, school and department has at least one CSR familiar with its computer net-

work and needs. At least one CSR works with each GTRI lab and some work within the support groups. Some of these CSRs must provide computer assistance between work on sponsored research projects or after hours.

Among the services CSRs offer are advice on equipment and software; assistance with special needs on A-projects; training and answers to questions; installation, configuration, assembly and upgrading of hardware and software; and trouble-shooting and problem-solving help. CSRs interviewed say they spend between 5 and 35 percent of their time helping co-workers with computers. Major changeovers, such as the transition from PROFS, require as much as 50 percent of their time some months.

CSRs have two options if they cannot solve a computer problem alone. Initially, they may post a description of the problem to the e-mail group that all CSRs check daily, to see if a colleague can offer advice.

However, if the CSR needs immediate assistance on a serious problem, he or she can phone the Helpdesk and expect a quick response, noted CSR Jimmy Woody.

"The Office of Information Technology has given CSRs a 'magic cookie,'" says Woody, a Senior Research Engineer. "If a CSR calls and really has an emergency, OIT will put someone on it immediately."

CSRs interviewed hope that one day their newly created occupation will include specific job descriptions, titles and career paths. In the meantime, they offer these helpful hints on efficient computing:

- Keep a computer notebook of everything you learn about hardware, software or networking, Moss says. "It could become a valuable tool for solving simple problems that are usually associated with lack of training."

- Call your CSR as soon as a problem arises, Moss adds. "Sometimes 'user solutions' can magnify the problem."

- Ask for training, or take time to train yourself to use your hardware and software, White says. "If you train people they can work easier and faster, and find new ways of working. The more the end users know, the more helpful the computer can be."

- Keep your CSR up-to-date about computer needs and whether the equipment you use is working properly, Woody says. "The reason for having a CSR is to help people, but we need you to keep us properly informed."



## Defensive Driving Training Required For Some Employees

Most of us know Building Supervisor George Watkins as one of the Facilities Management team members who keep our buildings safe and in working order. However, Watkins helps keep GTRI employees safe on the road, as well, by teaching a defensive driving course.

"It is my intent to make my students better drivers, and hopefully save lives," said Watkins, a U.S. Air Force retiree. "I have taught this class for more than one-and-a-half years now and have graduated about 175 people."

The class is a requirement for all employees who plan on using a GTRI vehicle. The four-hour session can be taken from 8 a.m. until noon on the fourth Thursday of any month except November and December, Watkins said.

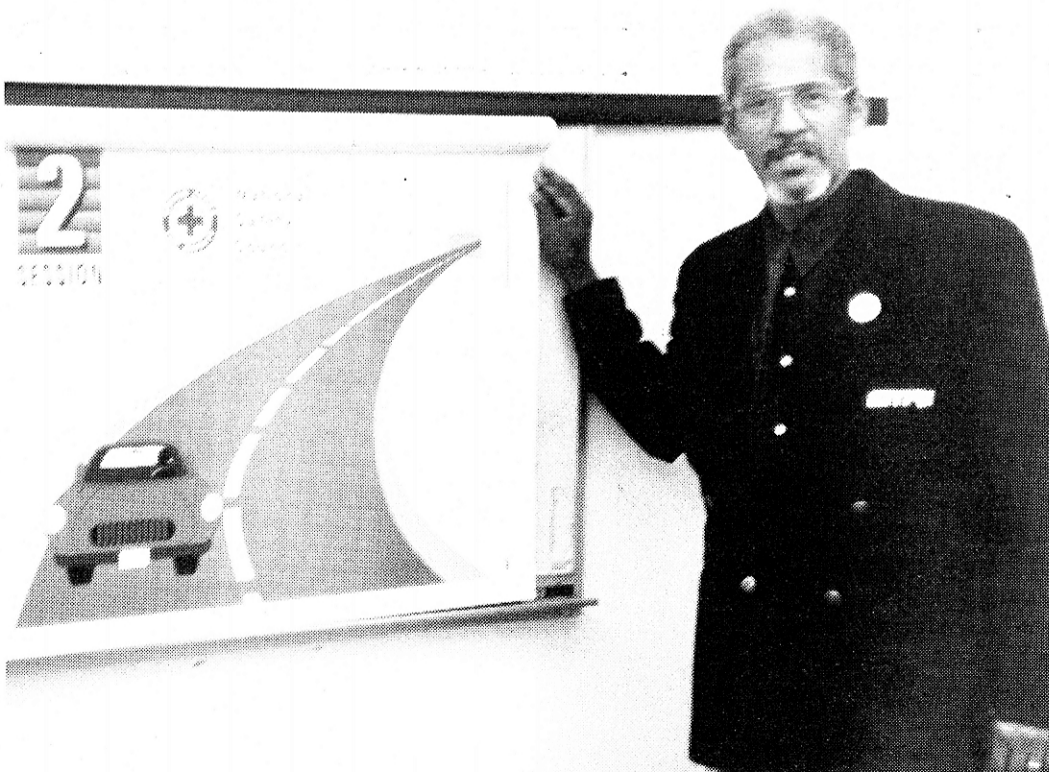
Classes are held in the first floor conference room of the O'Keefe Building, and are open to faculty, staff and students. Dependents may attend, as well, if seats are available, Watkins said. Average class size is about 18 students.

Attendance may hold an added bonus. Some insurance companies will give discounts to those who have taken the four-hour course. Check with your insurer for information, Watkins said.

To sign up for a class, call Watkins at 894-8068 at least a week before the scheduled class date.

**Ensuring that employees drive defensively in GTRI vehicles is one of George Watkins' responsibilities. Watkins wants to help keep automobile accident fatalities below the 43,000 reported nationally last year. (Photo by Lea McLees)**

**Student Assistant Quimin Lam, left, and GTRI Computer Coordinator Tony White upgrade the memory of a Macintosh II cx from 5 to 10 megabytes. Tasks such as this one are the kind that the CSR in each lab can perform. (Photo by Lea McLees)**





# News & Notes

**Senior Research Scientist Garth Freeman presents a print of the Tech Tower to Principal Research Engineer Kathryn Logan. About 30 well-wishers recently gathered to honor Logan, who is leaving GTRI. She first came to Georgia Tech as a student in 1964 and stayed on to work at GTRI. Luckily for Georgia Tech, however, Logan isn't leaving campus—she will be working in the School of Materials Science and Engineering. (Photo courtesy of Ginny Myers and Sheron Meyers)**

## Reorganization From page 1

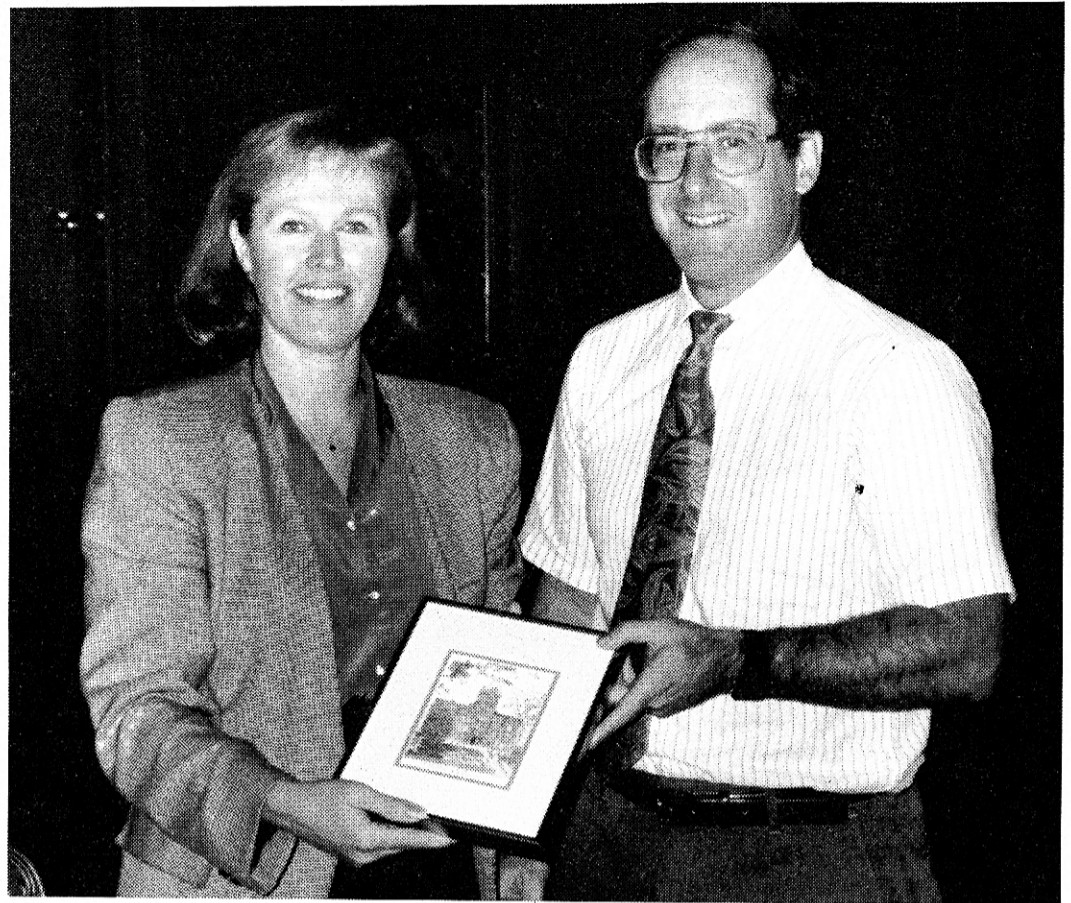
tromagnetic Applications Laboratory (SEAL); John Meadors, Signatures Technology Laboratory (STL); and Joe Parks, Systems Development Laboratory (SDL). (See related story on page 2.)

Lab directors report to Ed Reedy, who will oversee Research Operations. Donald Wilmot will serve under Reedy as head of the Program Development Office (PDO), which existed before the reorganization. Jim Cofer will head the new Advanced Concepts Office (ACO), also under Reedy.

ACO will coordinate the efforts of thrust groups formed from the labs to pursue funding in several strategically important research areas, Cofer said. More information on specific topics will be forthcoming in the near future.

Bob Shackelford will oversee Research Support and Finance, and will primarily manage GTRI's financial operations. Working with him is Pat O'Hare, who remains responsible for personnel and support areas. Shackelford and O'Hare are now evaluating how the support groups can most efficiently serve the labs. They will be talking with lab and support employees to help them take a fresh look at how service groups can work together more effectively to support the new GTRI organization. Until the results of this assessment are completed, research support groups will continue to operate as they do now.

Joining Truly, Shackelford and Reedy in leading GTRI is Devon Crowe, who remains Chief Scientist. He will promote campus collaboration, manage internal research, perform technology assessment and forecasting, help allocate GTRI resources and lead the GTRI Fellows Council, within the framework of GTRI's strategic plan. Charlie Brown will lead Enterprise Planning. He is charged with improving management of 1) strategic directions—making sure GTRI meets the goals and follows the new directions set in its strategic plan; and 2) total quality—making processes used here more effective, efficient and adaptable, resulting in even better customer satisfaction.



## Research in the News

By John Toon, RCO

During May, 61 articles about Georgia Tech research appeared in publications with a combined circulation of more than 8.6 million subscribers. Selected highlights of those media placements follow:

The **Combustion Chemical Vapor Deposition (CCVD)** process under development in the School of Materials Science & Engineering was described in *Business Week* (975,000), *Chemical & Engineering News* (135,000), *Chemical Week* (43,300) and *Aviation Week & Space Technology* (144,115). Information about the process has appeared in publications with a combined circulation of more than 1.3 million.

*The Chicago Tribune* (1,131,226) published an article and photograph about the **Sonic Boom Simulator** used by Krish Ahuja and others in GTRI's Aerospace Laboratory. News about this unusual work has generated more than a dozen news placements with a combined circulation of more than 7.3 million.

Another Krish Ahuja project dealing with **Automobile Noise** also gained attention for Georgia Tech. Articles and photographs of the work, done for Ford Motor Company, appeared in *Popular Science* (1,800,000) and *Automotive Executive* (21,272). Publications with a combined circulation of more than 3.4 million have given exposure to this project.

Simulation software known as **Xspice**, developed in GTRI and being made available to computer users, generated mentions in *Electronic Design* (165,000) and *Electronic Products* (124,044). These and other articles have resulted in hundreds of information requests from potential users of the program.

Collaboration on an **X-ray Tomographic Microscopy** technique involving GTRI, the School of Materials Science and Engineering, Lawrence Livermore National Laboratory and Sandia National Laboratories produced a refereed paper published in *Science*. Georgia Tech and Lawrence Livermore collaborated on a news release which has been published in *Chemical Week* (43,300), *American Metal Market* (11,416), and *Inside R & D*.

Mindy Millard-Stafford's research on the effects of **Sports Drinks** was described in the *San Jose Mercury News* (270,174), the *Boston Herald* (330,164) and *Running Times* (85,000).

Eric Barnhart was recently interviewed by the National Public Radio show **"Technovation,"** a syndicated half-hour weekly program exploring science and technology. Barnhart discussed Georgia Tech, GCATT, and the recent National Telesystems Conference on Commercial Applications and Dual-Use Technology, of which he was general chairperson.

## News In Brief

GTRI research faculty members may nominate candidates for the GTRI Fellows Council through September 10. Up to four fellows will be selected, one for a three-year term and three for four-year terms. Two active council members, GTRI Chief Scientist Devon Crowe and Principal Research Scientist Chris Summers, were appointed to the council on August 17 by Director Richard Truly.

The group will administer the GTRI Internal Research Program; assist in technology forecasting and assessment; and work toward campus research collaboration goals stated in GTRI's strategic plan. Establishing the council is a strategy cited in the plan, as well.

Fellows must be principal research scientists or engineers or full professors. Nomination guidelines, forms, and a list of the 70 eligible individuals were mailed in mid-August. Completed forms should be returned to Crowe, GTRI 0800.



Proposals for GTRI internal research funding may be submitted to Crowe's office

until October 1. Any current or potentially new area of research is eligible—about 50 percent of the funding, which has been increased significantly for FY 94, is earmarked for addressing society's emerging technological needs. GTRI's strategic plan calls for research in such areas to make up 33 percent of total research volume by 1996.

The proposals will be evaluated based on innovation, probability of success, contributions to the strategic plan, contract development potential and cost/benefit. Short, concise proposals that address strategic planning goals are preferred.



Janice Porter, Secretary to GTRI Director Richard Truly, needs your help! She is compiling a history of the GTRI (or Engineering Experiment Station [EES]) logo. Porter especially needs information on logos for EES, GTRI's predecessor, pre-1984. If you have photos, stationery, or timeline information that might be helpful, please contact her at 894-3401 or janice.porter@gtri.gatech.edu.



## Congratulations, Deming Graduates!

The following 70 GTRI employees recently completed "The Deming Approach to Total Quality Management (TQM)" short course by viewing and discussing a 20-volume series of videotapes on W. Edwards Deming's TQM philosophy. Each employee receives 1.1 Continuing Education Units for completing the course. This group brings to 131 the total number of GTRI employees who have taken the course.

Neal Alexander	Michael Heiges
James Allison	Mary Henderson
John Andrews	Wiley Holcombe
Sarah Andrews	Larry Holland
Charlotte Batson	Brian Hudson
Carl Baxter	Claudia Huff
Milton Bennett	David J. Huggins
Charles Brown	Cal Jameson
Tom Brown	Nancy Kelley
Fred Cain	Joanna King
Susan Carcione	Sandra Kirchoffer
Don Clark	Carolyn Mahaffey
James Clark	Jim Marks
William Clark	William Marshall
Tony Cochran	Gary McMurray
Jim Cofer	Marlon Moses
Bruce Crain	Rickey Cotton
Ron Creswell	Jajgeet Sidhu
Devon Crowe	David Mohr
Carol Croy	Marlon Moses
Nicholas Currie	Richard Odom
Janice Davis	Carolyn Olive
Linda Davis	Aram Partizan
Hugh Denny	Sam Piper
Angela DuBose	Russell Ray
Lee Edwards	Deann Reese
Martha Farley	Cynthia Rogers
Molly Gary	Harry Ross
Geoving Gerard	Juan Santamaria
Eunice Glover	Lillian Spearman
Jill Gostin	Mike Valletutti
Lamar Gostin	Harry Vann
Mary Granger	Bert Watkins
Harry Haas	George Watkins
Lou Haller	Jimmy Woody

## 18 Employees Retire From GTRI in FY 93

Congratulations and best wishes to the 18 GTRI employees who retired during FY 93!

NAME	LAB	SERVICE
Samuel T. Alford	TSDL	1969-93
Stephen P. Brookshire	RIDL	1969-92
Gerald J. Carey	OOD	1981-93
William J. Dittman	MATD	1965-93
Fredrick Dixon	TSDL	1950-92
Gene Dixon	MSDL	1974-93
Donald J. Grace	OOD	1976-93
James L. Hubbard	MSTL	1960-93
Bernard M. Jenkins	EEEL	1965-93
Bill Livesay	EOPSL	1958-93
William H. Nolte	MATD	1979-93
Marguerite R. Osborne	EDL	1979-92
Richard H. Prater	TSDL	1982-93
Robert N. Seitz	HRL	1981-93
Martha Ann Stegar	RCO	1963-93
Robert D. Thompson	TSDL	1979-93
Frank R. Williamson	RIDL	1959-93
Robert E. Willoughby	ESML	1980-92



## Events of Interest

- September 1**  
Computer Aided Software Engineering. Through September 2. For more information, call Continuing Education at 894-2457.
- September 7**  
14th Annual Modeling, Simulation and Gaming of Warfare. Through September 10. For more information, call 894-2457.
- Introduction to Multimedia. Through September 8. For more information, call 894-2457.
- September 8**  
Software Testing. Through September 9. For more information, call 894-2457.
- Database Design. Through September 10. For more information, call 894-2457.
- General Engineering Refresher Course. Through October 27. For more information, call 894-2457.
- September 10**  
Executive Overview of Multimedia. For more information, call 894-2457.
- September 13**  
UNIX Internals. Through September 15. For more information, call 894-2457.
- X Windows Programming. Through September 14. For more information, call 894-2457.
- September 14**  
Diffraction Optics Workshop. Through September 17. For more information, call 894-2457.
- September 15**  
Introduction to Computer Graphics. Through September 17. For more information, call 894-2457.

- September 21**  
Audience Analysis and Storyboard Production (Multimedia). For more information, call 894-2457.
- Oracle for Application Users, 9 a.m. until noon, Room 239/Rich Bldg. Through September 23. For beginners. Learn common SQL and SQL\*Plus commands, such as the SELECT statement, constructing tables and manipulating output. For more information, call the Office of Information Technology at 894-4660.
- September 27**  
Practical and Theoretical Issues in Science and Engineering Visualization. Through September 28. For more information, call 894-2457.
- September 28**  
Introduction to Microsoft Word for the Macintosh, 9-11 a.m., Room 239/Rich Bldg. For experienced Macintosh users who need help starting Microsoft Word. Learn basic editing, formatting, page setup, fonts, selecting margins and more. Bring a 3.5 disk to class. For more information, call 894-4660.
- September 30**  
"Reading and Writing in the 21st Century," noon, Room 102 A/B, Pettit Building. Computers and multimedia use in the classroom. Presented by Elliott Soloway, University of Michigan, as part of the Graphics, Visualization and Useability (GVU) Distinguished Lecture Series.
- Internet Exploration Tools, 9 a.m.-noon, Room 239/Rich Bldg. Learn about a wide range of software tools for accessing the Internet. Basic experience working in a UNIX environment is required, and experience with X Windows is a plus. For more information, call 894-4660.
- Understanding and Using Your Georgia Tech Computer Account, 2-4 p.m., Room 239/Rich Bldg. Formerly called "Basics of Hydra." This class is a prerequisite for the "Introduction to UNIX" class. Topics include logging on to your account; sending, receiving, reading and posting messages; and accessing Helpdesk online. For more information, call 894-4660.

*Below, Fred Cain, director of quality assurance is recognized by GTRI Director Richard Truly and Georgia Tech Vice President for Strategic Planning Tim Gilmour. Cain planned, coordinated and also enrolled in the Deming short course offered via videotape to GTRI employees. Cain then presented Gilmour with GTRI's proposal entry in Georgia Tech's "Quality Champions" competition. GTRI was later selected, based on this proposal, to participate in the "Champions" program. See related story, page 1. (Photo by Stanley Leary)*





# Focus on Folks

Due to the great number of professional activities to report, "Personal Notes" and "Personal News" were held and will resume in September.

## Professional Activities

(This month's professional items are listed alphabetically by the last name of the first person cited in each entry. We used this method for August since GTRI was in transition between old and new lab structures during our deadline. Next month we'll resume listing items by lab.)

### A-D

**Dayton Adams, Rickey Cotton, Glenn Hopkins** and **Eric Myers** attended the IEEE MTT-S International Microwave Symposium, held in Atlanta, June 15-17. Adams chaired a session. Hopkins and Myers were on the steering committee. Hopkins also organized and coordinated the Georgia Tech Exhibition Booth at the symposium.

**James Beletic** participated in the Gemini 8-meter telescope working group meeting at the Royal Greenwich Observatory in Cambridge, England, July 12-13. Beletic and the GTRI CCD Imaging group presented two papers at the Active and Adaptive Optics Conference conference in Garching, Germany, August 2-5. The papers are: "A New Approach to High Speed, Low Noise CCD Camera Design," with **Charles Bleau, Michael Adkins, Thomas Collins, Robert Platt** and **Raymond DuVarney**; and "Measurements of Angular Correlation of Stellar Centroid Motion and Their Implication for Laser Guide Star Adaptive Optics," with **Anand Sivaramakrishnan** and **Ray Weymann**, both of the Observatories of the Carnegie Institution.

**Don Bodnar** attended the 1993 IEEE AP-S International Symposium and the 1993 National Radio Science Meeting held in Ann Arbor, Mich., June 28-July 2. Bodnar became vice president of the IEEE Antennas and Propagation Society. He is also chairman of the IEEE Antenna Standards Committee.

**Joe Brooks** and **Nick Pomponio** presented "Sensor Fusion for Helicopter Electronic Defense" at the Sixth Annual National Conference on Sensor Fusion, sponsored by the Environmental Research Institute of Michigan April 13-15 in Orlando, Fla.

A well-attended "Principles and Applications of Millimeter Wave Radar" short course was conducted in Atlanta by the Radar and Instrumentation Development Laboratory during July 26-30. Coordinators were **Wayne Cassaday** and **Tracy Wallace**. Lecturers included **Jim Scheer, Nick Currie, Tracy Wallace, Wayne Cassaday, Jim Echard, Bob Trebits, Bill Holm, Margaret Horst, Ben Perry, Bob McMillan, Don Bodnar, Sam Piper, Charlie Brown, Guy Morris, Joe Bruder, Joe Galliano, and Ed Joy**.

**Scott Crowgey** and **Victor Tripp** had a paper published at the 1993 National Radio Science Meeting held in Ann Arbor, Michigan, June 28-July 2. It was titled "Design of Arrays to Radiate Short Pulses."

**John Dimarco** and **Bill Bell** presented "User Perspectives on SPIRITS" at the 1993 JANAF-SPIRITS Users group meeting July 12 in Austin, TX.

**Ted Doll** will lead a symposium titled "Preattentive Processes in Visual Search" at the

annual meeting of the Human Factors and Ergonomics Society in Seattle, October 11-15. He also will present a paper, co-authored with **David Schmieder** and **Shane McWhorter**, at the conference. Its title is "Simulation of Human Visual Search in Cluttered Backgrounds." In addition, Doll and Schmieder published an article in July's *Optical Engineering* titled "Observer False Alarm Effects on Detection in Clutter."

### E-H

**Paul Friederich, Keith Kelley** and **Rick Moore** have had three papers accepted for presentation at the Fifth DOD Radome Symposium scheduled for October in Boulder, Col.

**Bruce Glasgow** recently presented "An Affordable MRI System Design" during an Emory University School of Medicine Department of Radiology seminar.

**Claudia Huff** served on the June 15 "Ethics and the Performance Technologist" panel sponsored by the National Society for Performance and Instruction held in Atlanta.

### I-L

**P. Keith Kelly** attended the June 28-July 2 IEEE Antennas & Propagation Society International Symposium at Ann Arbor, Mich. He also attended the Measured Equation of Invariance short course taught by Professor **K. K. Mei** of the University of California/Berkeley June 26-27.

### M-P

**Kirk Mahan** presented an overview of OSHA's Construction Safety Standards to a group of local contractors on July 31.

**Jim Maloney** has co-authored with Glenn Smith (School of Electrical and Computer Engineering) three upcoming presentations: "Accurate Modeling of Antennas for Radiating Short Pulses, FDTD Analysis and Experimental Measurements," Proceedings of Second WRI International Conference in October; "Excitation of Antennas by Transmission Lines: A Simple Accurate FDTD Model; and "A Resistively Loaded Bowtie Antenna for Pulse Radiation: FDTD Analysis and Optimization;" for the 1993 IEEE AP Symposium in July.

**Jim Maloney** and **Glenn Smith** (EE) have recently published three papers in *IEEE-AP Transactions*: "Comparison of Methods for Modeling Electrically Thin Dielectric and Conducting Sheets in the Finite-Difference Time-Domain (FDTD) Method," "A Study of Transient Radiation from the Wu-King Resistive Monopole," and "Optimization of a Conical Antenna for Pulse Radiation: An Efficient Design Using Resistive Loading."

**Rick Moore** is one of several authors (from JPL, MIT, Rockwell, Los Alamos, MTT) of "An Intercomparison of Measurement Techniques for the Determination of the Dielectric Properties of Solids at Near Millimeter Wavelengths," to *MIT Transactions*, August 1993. Moore also gave an invited presentation on "Radar Absorbing Material Measurement Techniques" during the materials workshop at the June MTT meeting in Atlanta, June 14-18.

**Istvan Nogradi** presented a paper entitled "Array-Type Pulsed-Power Modulators" at the 28th Intersociety Energy Conversion Engineering Conference in Atlanta, August 8-13.

**Lon Pringle** presented "Generalization of Reflectance and Emissivity from Desired Emitted

Radiance" at the KRC Symposium on Ground Target and Modeling Conference in August 1993.

### Q-T

**Paul Schlumper** gave a presentation on OSHA, Confined Space Entry Procedures, and Bloodborne Pathogens at the quarterly meeting of Employer's Resource, Inc.

**Vic Tripp** presented a paper entitled "A Low-Profile Broadband Balun Feed" at the 1993 IEEE AP-S International Symposium held in Ann Arbor, Mich., June 29-July 2. Tripp and **Johnson Wang** had a paper published at the National Telesystems Conference 1993, held in Atlanta on June 17. Their paper entitled "G/T and Tracking Features of a Broadband, Low-Cost, and Low-Profile Land-Mobile Spiral-Mode Microstrip Antenna" was published at the 1993 National Radio Science Meeting, June 28-July 2 in Ann Arbor. Wang also attended the IEEE AP-S International Symposium.

### U-Z

**Tony White** had a paper accepted for publication in the *Proceedings of International Oracle User Week*, September 26-30. It is titled: "A Client/Server Database Implementation Using a TCP/IP Network." He will present the paper at the Orlando, Fla., meeting.

**Art Wickman** presented a lecture on "The Exposure of Custodial Workers to Airborne Asbestos" at the July 22 meeting of the Georgia Section of the American Industrial Hygiene Association.

Three chapters of the new *Infrared and Electro-Optical Systems Handbook* were authored by GTRI employees. This book, in eight volumes, replaces the *Infrared Handbook* of 1978, which replaced the original *Military Infrared Handbook*. This series of books has been the main reference for professionals in this field. Chapter One, "Warning Systems" (in Volume 7, *Countermeasure Systems*) was authored by **Donald Wilmot, William Owens, and Robert Shelton**. Chapter Two, "Camouflage, Suppression, and Screening Systems" (also in Volume 7) was authored by **David Schmieder** and **Grayson Walker**. Chapter Four, "Detectors" (in Volume 3: *Electro-Optical Components*) was authored by **Devon Crowe, Peter Norton, Thomas Limperis, and Joseph Mudar**. This is the first GTRI representation in this widely referenced work, previously dominated by authors from ERIM and Arizona State University.

## Job Information Posted

Information on available jobs within GTRI and on the academic side has been posted in the lobbies of all GTRI buildings. The information also is available electronically through the GTRI Clearinghouse. For more Clearinghouse information, contact Eunice Glover at 894-6972 or eunice.glover@gtri.gatech.edu.

## Correction

Mike Kelly, a co-presenter of "ATMS 2000: Hybrid Automation or a 'Lights Out' Traffic Management Center" was incorrectly identified as a Manufacturing Research Center employee in the July issue. He is a GTRI employee. THE CONNECTOR regrets the error.

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