

# The GTRI Connector

## On Wisdom

Vacant lots and vacant minds attract the most rubbish.

—Arnold Glasow

It's almost always more fun to learn than it is to be taught.

—Anonymous

Knowledge and timber should not be much used until they are seasoned.

—C.W. Holmes

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## Restructuring In Progress

By Lea McLees and Lee Hughey, RCO

The new GTRI structure resulting from this spring's organizational study could be in place within the next month, according to GTRI Director Richard Truly.

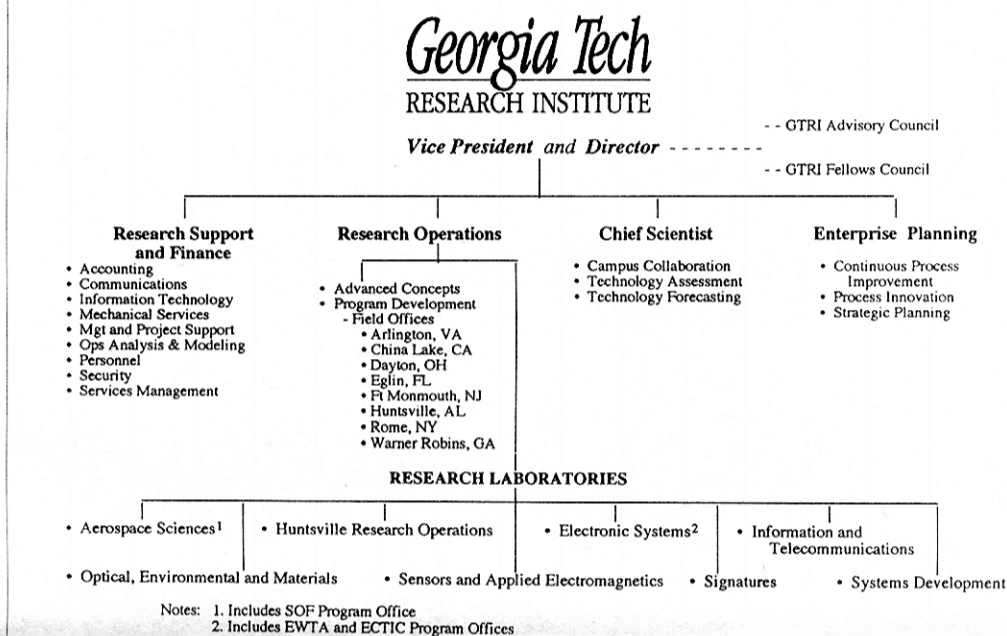
Georgia Tech President Pat Crecine approved the plan in mid-July and transitions have begun, Truly said. In the meantime, all labs, offices and support groups will operate as they are.

"I think we are very close to being done," Truly said. "This is a result of our strategic planning and looking to the future, finding ways to more efficiently align ourselves with the opportunities that are going to be available. Where we have strength, we are trying to build on it, and where we do have some weaknesses, we are matching that with the correct strengths. The whole idea is to have a more effective GTRI."

The plan consolidates GTRI's 18 labs into eight, and results in four direct reports to Truly (see related diagram, right). Research Support and Finance personnel will report to Executive Associate Director Bob Shackelford. Associate Director Ed Reedy will lead Research Operations, with all labs reporting to him. Devon Crowe remains chief scientist, heading the Senior Technology Guidance and GTRI Fellows councils. Charlie Brown will lead Enterprise Planning, and for the next six months will be Interim Director of the Office of Information Technology.

Truly has appointed Lab Director Trent Farill (MAL) to lead a working group that will study GTRI's multispectral signal capabilities, and submit recommendations for this area. Truly also plans to re-start the GTRI Advisory Council, an external group who will share their expertise

*Continued on page 2*



*The organization chart at the left shows how the new GTRI will be administratively aligned. The reorganization has received the approval of Georgia Tech President John P. Crecine.*

7/8/93

## GTRI Strategic Plan Approved

By Mark Hodges, RCO

GTRI has finalized its new strategic plan. After showing the document to a variety of Georgia Tech administrative and advisory groups, Director Richard H. Truly has decided to proceed with the recommendations compiled in a series of meetings earlier this year.

The plan is spelled out on the front and back of a single flyer.

Commenting on the relative brevity of the strategic plan, Truly said: "We want a very

accessible plan. We intend to present GTRI's goals in a clear, succinct form."

The plan calls for GTRI to serve as "a vital force" in establishing Georgia Tech as "the premier technological university of the 21st century." GTRI's goal is to be the most respected university-based applied research institute in the nation.

It includes statements of GTRI's vision and mission, as well as a set of goals in five focus areas. These areas include: Quality, Human Resources, Georgia Tech Teamwork, Economic Development, and Research.

The plan's mission, goals, and strategies are reprinted on pages four and five of this issue. Copies of the plan soon will be sent to GTRI staff members.

## Observed & Noted

Three large professional meetings were held in Atlanta last month, and GTRI research faculty played important roles in these events. *Read about it on page 2.*

Two GTRI research scientists, Kathryn Logan and Devon Crowe, have been named fellows of

the American Ceramics Society and the Optical Society of America. *Turn to page 3 to read about these honors and their professional accomplishments.*

The centerfold of this issue is dedicated to the new GTRI strategic plan. It includes five ac-

tion areas, 19 goals, and 30 specific strategies. *The plan appears on page 4 and 5.*

Most of us assume that we're fully covered by insurance when we rent cars for work purposes. However, there are cases when this may not be true. *To learn more*

*about arranging for full protection against risk, read the story appearing on page 6.*

GTRI employees continue to play an active role on various Georgia Tech faculty governance committees. *The full list of winners in recent elections appears on page 6.*

Former GTRI radar expert Fred Nathanson died on June 20, and an article in this issue recounts his career and the memories of GTRI colleagues. *Read about them on page 7.*

A variety of continuing education

courses are available on the Georgia Tech campus in August. *The list appears on page 7.*

To keep up with the professional accomplishments and personal news of GTRI colleagues, turn to the back cover.

**News  
&  
Notes**

**This computer-guided helicopter, right, completed autonomous flight during the 1993 aerial robotics competition June 25 and 26 at Georgia Tech. The flights this vehicle made are among the first non-radio controlled ones for crafts this size and class. The helicopter was designed and built by a team of Georgia Tech students and faculty. Watching the craft fly is Rob Michelson (AERO), background center in plaid shirt. Michelson is president of the Association for Unmanned Vehicle Systems, which sponsored the competition. He has organized the competition held at Georgia Tech since it started in 1991. (Photo by Stanley Leary)**

**Campus Coordination Lends Success to "Microwave Week"**

By Lea McLees, RCO

Cooperation, coordination, and leadership among researchers from all over Georgia Tech were the keys to success at three concurrent professional meetings in Atlanta last month.

At least 6,000 people from around the world attended the 1993 IEEE MTT-S International Microwave Symposium, IEEE Microwave and Millimeter-Wave Monolithic Circuits Symposium (MMWMC), National Telesystems Conference (NTC), and the 41st Automatic Radio Frequency Techniques Group Conference, all held the week of June 14 through 18.

Sites for meeting such as the MTT-S are often selected seven to 10 years in advance, so careful planning and coordination by the host institution is important, said Dr. Pete Rodrigue, Regents' Professor in the School of Electrical Engineering and co-chairman of the MTT-S Symposium, the largest of the four meetings.

"There were a number of Georgia Tech individuals involved in this conference, and they worked very well as a team," he said. "Our cadre of volunteers was also made stronger because it included engineers from seven local companies who supported the event."

Heading up the MTT-S meeting along with Rodrigue was co-chairman Charles Rucker, Principal Research Engineer at the Microelectronics Research Center. Senior Research Engineer Mike Harris (EOPSL) served on steering committees for both the MTT-S and the MMWMC symposiums, and Lab Director Eric Barnhart (COML) chaired the NTC meeting. Senior Research Engineer Rusty Roberts (TSDL) was finance chairman for MTT-S and coordinated registration for all Microwave Week meetings at the World Congress Center. Research Engineer Glenn Hopkins (MATD) was technical chair for an EEs of Users' Group meeting.

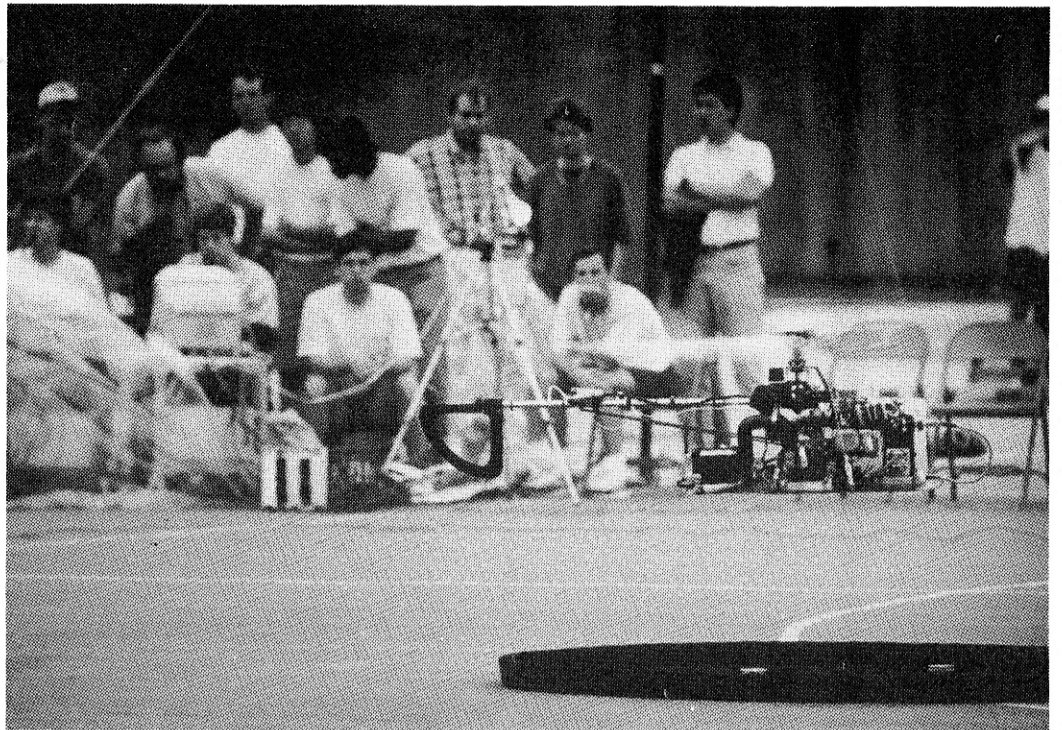
Coordination of registration was important Barnhart said, because many people attended more than one of the conferences.

Harris cited examples of campus-wide involvement in conference planning. He worked with electrical engineering students Steve Kenney (catering — Kenney also won the MTT-S "Best Student Paper" award), Ron Briggs, and Eric Hayes, (directions and information) on the MMWMC Symposium. A number of Georgia Tech representatives served on the technical program committee.

In addition, researchers from Electrical Engineering and GTRI's Microwave and Antenna Technology Development, Radar Instrumentation Development, Countermeasures Development, and Threat Systems Development labs and the Program Development Office coordinated and staffed a Georgia Tech booth in at an exhibition common to all the meetings (see related article, this page).

Among the topics addressed at the meetings were Intelligent Vehicle Highway Systems, cellular phones, direct broadcast satellites, military needs and other applications.

Many of these subjects discussed at the MTT-S Symposium were examples of defense conversion, Hopkins said. In fact, defense conversion was the entire theme of the NTC, Barnhart said. He made a conscious effort to involve business and industry — and high-



light Georgia Tech's capabilities — to foster research partnerships.

"Tech really is a leader in the commercial and dual use technology arenas," he said. "Involving as much local industry as possible is imperative, with the growing importance of commercial and industrial sponsors in our work."

*For more information on GTRI colleagues who participated in these meetings, see the Professional Achievements section on page 8.*

**Display Materials Available for Meetings, Conferences**

By Mary Ann Burke, RCO

**W**ant to add more pizzazz to your booth space at conferences, meetings, symposiums, open houses, or other professional gatherings? Research Engineer Glenn Hopkins (MATD) did, and his efforts paid off. Hopkins, working jointly with staff from the Program Development Office, RCO, ESML, FMD, the Office of Interdisciplinary Programs (OIP) and the School of Electrical Engineering (EE) produced a very successful Georgia Tech exhibit at the recent IEEE MTT-S International Microwave Symposium.

The exhibit system components Hopkins used include: a portable 8' x 10' Nomadic Instand display with shelves, spotlights, and a gold Georgia Tech banner; a custom, black 10' x 10' carpet with an inlaid gold "GT;" a Plexiglas two-shelf display case; and a rotating literature rack with 80 pockets.

The exhibit system and an array of photographs from GTRI annual reports and research projects are available to everyone. To reserve all or part of the exhibit system, you may call RCO at 894-3444. If you need assistance in planning and organizing your exhibit, contact Mary Ann Burke at 894-6981 or send e-mail to maryann.burke@gtri.gatech.edu.

**Gopher Server Renamed**

THE GTRI CONNECTOR is electronically accessible on the Georgia Tech Gopher Server. To see it, type "research" at the login prompt after entering Hydra. THE CONNECTOR and other GTRI news are in the "Research News and Information" subdirectory at the main menu of the Gopher Server.

**Restructuring From page 1**

and advice on GTRI's research and directions.

Labs will be arranged as follows: Aerospace Sciences will include the AERO Lab and the Special Operations Forces (SOF) program. Huntsville Operations will remain the same. Electronic Systems will include ESML, CAL, and CMDL, along with the EWTA and ECTIC program offices. Information and Telecommunications will include CSIT and COM. EOPSL, ESTL, and MSTL will become the Optical, Environmental and Materials lab. Sensors and Applied Magnetics will include RSA, MATD, MAL/Cobb County, and EEEL. Signatures will include STL and MAL/campus. TSDL and RIDL will be the Systems Development lab.

Key leadership positions for the labs and other areas had not been determined at presstime, but were expected to be named shortly. Truly may elect to appoint interim directors and conduct searches for permanent leaders. Shackelford and Reedy are developing the organizational transition plan.

The restructuring effort began in April, as part of GTRI's strategic plan (see related article on page 1). Truly appointed Shackelford to head a task force examining the organization of OOD, as well as executive and associated staff functions and service departments. A second group, led by Reedy (OOD), looked at lab and unit structures. The groups solicited input from people in and out of GTRI and considered a variety of organizational combinations before making their recommendations to Truly, who then discussed the ideas with lab directors.

"Technology is moving faster and faster," Truly said. "We want to have a lab structure that not only gets us into new technologies when we believe that is appropriate, but also makes it easy to phase out of technologies when they have been overcome by events."

Truly emphasized that many of GTRI's customers are experiencing much more traumatic changes than we have, but that change is inevitable in large organizations such as ours. The best way to make the reorganization work is to remember that it puts already excellent research on tomorrow's technologies into more efficient combinations, Truly said.

"The people we have in the labs, at the lab director level and in the front office are some of the finest people I've ever worked with," he noted. "We've got excellent people doing research, and I am very proud of them. I think by achieving the goals in our new strategic plan we will have an opportunity to be even better."



## Logan Becomes First Georgia Tech Woman Named ACS Fellow

By Lea McLees, RCO

When Kathryn Logan arrived at Georgia Tech in 1964, she was a freshman seeking an education in geology and gemology. She found what she was looking for, and more, in the School of Ceramic Engineering.

Today, Logan is a 23-year GTRI employee with a successful career in materials research and five ceramics-related patents, with a sixth pending. She earned bachelor's and master's degrees in ceramic engineering in 1970 and 1980, respectively. A principal research engineer, author of more than 40 publications, and former interim director of the Materials Science and Technology Laboratory, Logan also earned a Tech Ph.D. in Civil Engineering in 1992. The American Ceramics Society (ACS) named her a Fellow this year.

Only seven percent of the more than 10,300 ACS members eligible are Fellows, the highest rank attainable in the group. Just 15 of the Fellows are women, and Logan is the first female ACS Fellow named at Georgia Tech.

"An individual is elevated to the grade of Fellow for outstanding contributions to ceramic sciences; broad and productive scholarship in ceramic science and technology; conspicuous achievement in ceramic industry; or for outstanding service to the Society," Logan said. "I am highly honored to be elevated to Fellow."

Logan was one of 30 new Fellows chosen from a pool of approximately 100 this year. She becomes the fourth Tech faculty member to hold this title, joining Jack Lackey (MSTL),



Joe Cochran and James Benzel (School of Materials Science and Engineering).

Logan is recognized for research in advanced synthesis and processing of ceramics using self-propagating, high-temperature methods. In this process, researchers briefly introduce a hot wire to a mix of powders such as titanium oxide, boron oxide, and either aluminum or magnesium. The heat starts a high-temperature chemical reaction, forming a final powder of titanium diboride particles smaller than one micron—one-fiftieth of the diameter of a human hair. The particles are then formed into products for semiconductor, aerospace and other high performance applications.

Logan's work on this project began in June 1983. It is based on the coating technology using thermite reactions that retired employees J.D. Walton and Nick Poulos researched in the 1950s.

The thermite reaction Logan uses to make titanium diboride can reach temperatures up to 2,200°C (4,000°F), and produces brilliant fireworks. Conventional furnaces cannot reach such high temperatures; as a result, titanium diborides and other such materials have not

been used widely in ceramics manufacturing. Thermite reactions could change that, however, because they do not require a furnace to generate heat.

Titanium diboride could be used in impact-resistant shields and as the cutting and drilling surfaces of tools. Drill bits made of titanium diborides, for example, "are harder and would last longer than tungsten carbide, yet they are not as hard as, and would not be as expensive as, diamond drill bits," Logan said.

Logan and Barry Rosenberg of the Office of Technology Licensing have been responding to numerous inquiries about her work with thermites.

Logan also has a joint appointment with the Office of Interdisciplinary Programs (OIP) working with Vice President Gary Poehlein in administering Tech's interdisciplinary research centers. One of her main objectives is to help facilitate cross-campus interactions. Logan has been active on campus in many other activities, collaborating with faculty in research and serving on many committees.

"I've been here since 1964, so I know and have worked with many of the faculty," she said. "It is gratifying to see people at Georgia Tech work together as a team and have something good, such as a focused research program or an interdisciplinary center, come out of the effort. I have a number of perspectives: student, research faculty, and now mother of a student. My daughter is a junior in mechanical engineering."

In the meantime, as chair-elect of the ACS engineering ceramics division, she is Program Chair of the Composites and Advanced Ceramics annual January meeting of 700 people in Florida. She also is planning future research projects. Next on her list? Analyzing the microstructure of the titanium diboride created in the lab.

*Kathryn Logan has become the first woman at Georgia Tech to be named an ACS Fellow. A GTRI employee for 23 years, and is now one of four faculty members at Georgia Tech holding the Fellow rank in the ACS. (Photo courtesy Kathryn Logan)*

## Crowe Named OSA Fellow

By Lea McLees, RCO

One of the Optical Society of America's (OSA) newest Fellows has achieved a first among GTRI employees.

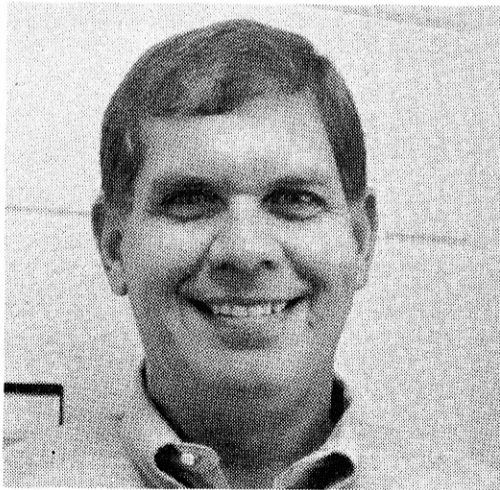
Associate Director and Chief Scientist Devon Crowe (OOD), who came here as a principal research scientist/lab director in 1987, is the first current GTRI employee named an OSA Fellow while working at GTRI.

"It is an honor," Crowe said. "There's the traditional joke about the price of a cup of coffee being the same no matter how many honors you have, but I still appreciate very much being recognized."

Crowe has served as a lab group director and founding co-director of Tech's Center for Optical Science and Engineering. He is an adjunct professor of electrical engineering and has published more than 140 publications, including a book and a book chapter.

The letter announcing Crowe's status cites his "distinguished service in the advancement of optics, particularly for research in optical science, innovation in optical engineering, and achievement in the administration of research and development."

Crowe and Richard Kenan (School of Electrical Engineering) were among 52 Fellows selected this year from a pool of 63 nominees. There are currently 935 fellows among OSA's almost 12,000 members.



Crowe and Kenan bring to five the number of OSA fellows at Georgia Tech, along with previously named Fellows Thomas Gaylord and Carl Verber (EE), and William Rhodes of the Center for Optical Science and Engineering.

Crowe has explored optical and radar imaging systems, high-density digital data storage, antennas, solar energy, real-time television teleconferencing, signal processing and remote sensing of stealth aircraft. He has developed a way to measure corrosion in pipes and generated ways of restoring images seen through telescopes, but distorted by the turbulence in the atmosphere.

Crowe has designed a 3-D holographic television and invented a multi-layer solar cell that is theoretically very efficient. He also devised a way to create high definition television images relying on existing cameras, recorders, and communications channels.

"One disadvantage of working at the front end of technology is that it takes a while for you to find out how important it will be," Crowe said. "Everything that I have worked on has been intended for specific applications. However, I like to emphasize things that can be in some way fundamentally new."

Some of his most important work falls into that category. He has spent much time exploring the fundamental and practical limits to the amount of data that can be stored using a variety of optical devices. Practical applications of methods he wrote about 10 years ago are now being developed for high-density data storage.

In 1981 Crowe calculated that previously accepted fundamental limits to information storage in far-field optics could be improved upon, using what Japan's optical disk manufacturers now call "super resolution" storage devices. These devices could hold four times more information than today's compact disk read-only memory (CD ROM).

Crowe also has written about near-field storage devices during the last three to four years. Such devices will have up to 10,000 times more storage capacity than today's far-field equipment, and are being demonstrated experimentally by Bell Labs.

More data might be stored using particle optics, an area Crowe began exploring about 13 years ago. Because of the small size of the spaces occupied by bits of data recorded using tiny electrons, protons and neutrons, this method of data storage probably will not be available until the 21st century.

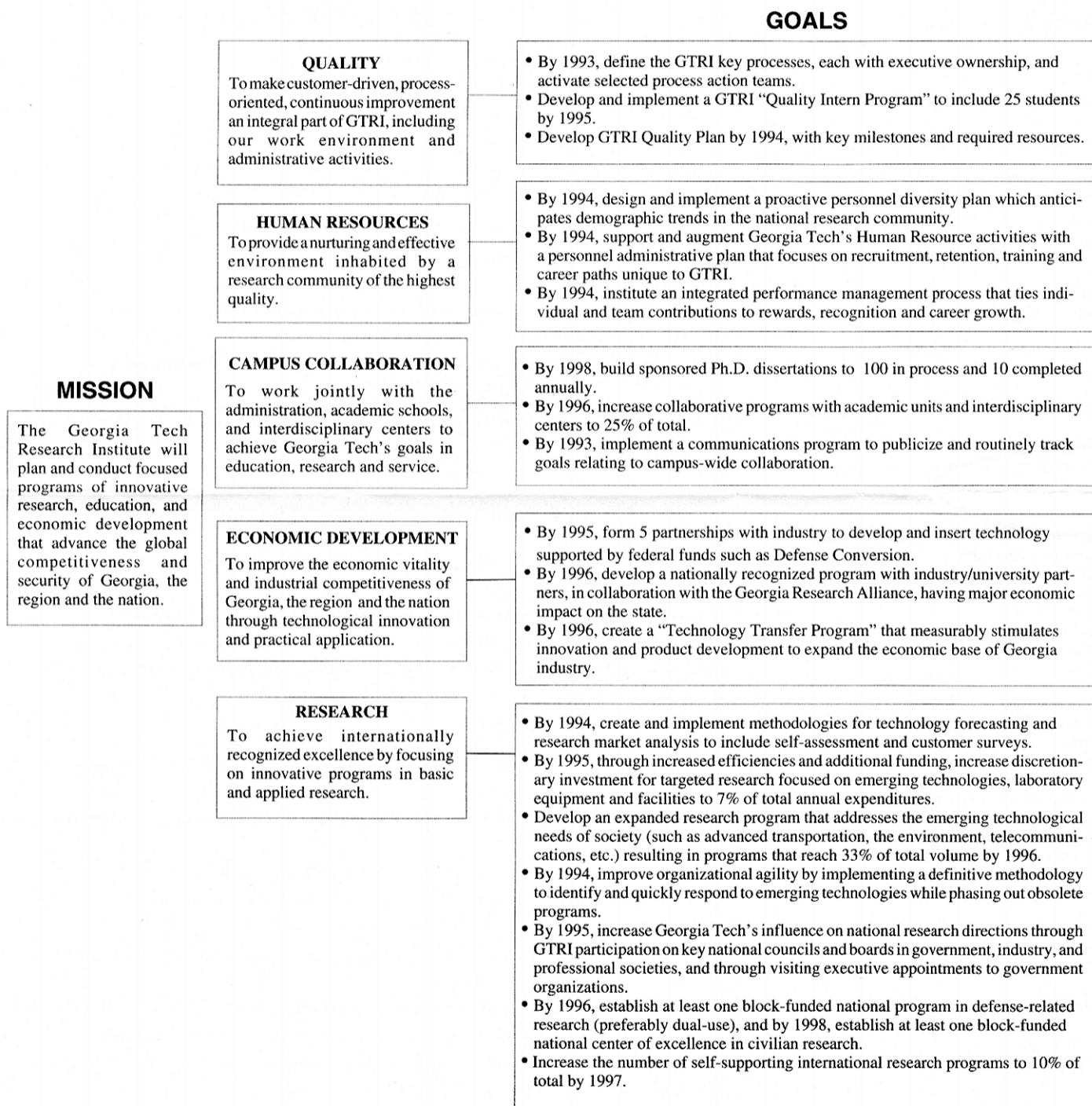
*Devon Crowe is the first current GTRI employee named an OSA Fellow while working at GTRI. He and four other faculty members at Georgia Tech hold this rank. Crowe has worked at GTRI for six years. (Photo by Lea McLees)*

# Engineering Tomorrow

"...whatever you do or dream you can, begin it. Boldness has genius, power, and magic in it. Great achievements require it."

## GTRI's New Strategic Plan

The research conducted by the Georgia Tech Research Institute (GTRI) reaches back to the first half of the twentieth century, and the Institute has played an important role in bringing the Cold War to a close. During the spring of 1993, the leadership of the GTRI came together to address the challenges the twenty-first century becomes a reality. A series of meetings resulted that addressed issues as diverse as worldwide pressures resulting from new directions of emerging technologies. The result is this strategic plan—a roadmap to guide GTRI into the new century.



## Our Vision

Working closely with the academic colleges and interdisciplinary centers in areas of research, education, and service, GTRI will be a vital force in establishing Georgia Tech as the premier technological university of the twenty-first century. GTRI will be the most respected university-based applied research institute in the nation.



# Tomorrow's World

genius, power and magic in it." —Goethe

## Strategic Plan

The discoveries and practical applications of GTRI technologies have helped to define today's world. Together, we take a completely fresh look at the future directions of research that would be evolving as a result of rapidly changing defense needs, tightening global economic conditions, societal crises, and

### STRATEGIES

1. Demonstrate top-down leadership commitment to quality.
  2. Establish customer focus including annual customer satisfaction surveys.
  3. Complete a Baldrige self assessment.
  4. Activate and empower staff teams to improve key processes.
  5. Develop industrial/academic partners to jointly define a Quality Intern Program.
6. Forecast the outyear research community demographics through 2010.
  7. Include recruiting and retention goals at all experience levels in the personnel diversity plan.
  8. Periodically inform Georgia Tech students, especially minorities and women, about GTRI opportunities.
  9. Encourage GTRI employees to participate in student outreach programs in math/science.
  10. Publish a GTRI policies/procedures document.
  11. Enhance Human Resources information collection, documentation, and communication.
12. Improve Georgia Tech administrative processes to achieve educational and research collaborations.
  13. Build collaborative activity by obtaining joint development funds and an academic interaction budget.
  14. Substantially increase academically active shared appointments, in part through joint recruiting.
  15. Work with Interdisciplinary Centers and Schools to jointly acquire and use research facilities/equipment.
  16. Hire GRAs to fill more junior research positions.
  17. Encourage periodic briefings and seminars among laboratories and schools.
18. Encourage technology transfer as an expected research product in every GTRI laboratory.
  19. Include technology transfer considerations as a part of the internal resource allocation process.
  20. Form Technology Transfer Partnerships with industry/government participants in residence.
  21. Develop new technology transfer customers and funding.
22. Establish an improved annual GTRI process, which includes laboratory director participation, to establish research directions and allocate resources.
  23. Develop new investment strategies, jointly with the Georgia Tech administration, to ensure the achievement of GTRI's strategic goals.
  24. Establish a process for periodic external evaluation of GTRI research directions.
  25. Activate a Director's Council of GTRI Fellows to recommend technology directions.
  26. Improve the cost effectiveness of research support throughout GTRI.
  27. Provide internal resources to encourage and support new research efforts into targeted areas of benefit to society.
  28. Establish a steering group to identify and pursue selected center of excellence and block-funded opportunities.
  29. Identify and support candidates for professional society Congressional Fellow nominations.
  30. Develop a capture and implementation plan, working with the assets of the Georgia Tech community -- including alumni -- to expand international research opportunities.

## An Integral Part of Georgia Tech . . .

GTRI enriches the Georgia Tech research environment for faculty and students by conducting externally sponsored, applications-oriented research programs that benefit the state, region and nation. These programs, led by full-time research faculty, have resulted in major technological advances for national defense, civilian needs and industrial competitiveness, and have provided students with valuable career experiences. The integral role of GTRI in the Georgia Tech community includes collaborative research with academic faculty, courses originated by GTRI faculty, and joint service efforts.

## News & Notes

**Forest Williams (FMD) displays a signed apron presented to him by his facilities management co-workers. For the second year Williams put his barbecuing talents to work for the FMD picnic. About 30 people lined up in the O'Keefe gymnasium to partake of Williams' secret recipe barbecue, which he's been cooking and catering for 30 years. Williams took two days of his own time to prepare the meat. The FMD picnic tradition was started by Thomas Jones, who has worked at GTRI for 30 years. (Photo by Lea McLees)**

### Insurance: Are You Adequately Covered While Renting Car for Work?

By Lea McLees, RCO

The paying of regular auto insurance premiums often lulls auto owners into thinking they are adequately covered in any vehicle they drive — even while renting a car on business. However, that is not always the case, thanks to cutbacks in the insurance industry and cumbersome policies that few owners fully understand, says Georgia Tech Risk Manager Frank Murphy.

"Insurance companies today are cutting a lot of options they used to give free of charge, in order to save money," Murphy said. "Anyone who rents a car for business purposes should read the rental car policy and his or her own personal auto insurance policy very carefully."

Following are Murphy's tips on insurance for renting a car on business travel.

**What do I look for in my personal policy and the rental car policy?** Understand the coverage limits of the following three items in each policy: liability, physical damage/collision, and personal injury/medical expense coverage. The rental car company should cover the first item, liability, which is responsibility for damage you do to someone else.

**What about physical damage/collision?** Fewer and fewer companies are offering this coverage free of charge. If the rental car company does not offer collision coverage free, the agent sometimes asks the name of your insurance company and lists that entity as covering collision on the rental vehicle. However, collision policies may cover only the value of the car they are written for specifically. That can cause serious problems if the traveler's own personal auto is an older car with a lower dollar value than that of the rental car, Murphy explained.

"You can have collision coverage worth \$2,000, for example, and be renting a car worth \$25,000," Murphy explained. "If the \$25,000 car you are renting is damaged through your fault, the rental car company will come to you for the amount your insurance does not cover."

**How can I protect myself?** Accept the collision coverage the rental car company offers, which may require that you pay an extra amount per day. This cost is reimbursable through accounts payable.

**What about the personal injury coverage mentioned?** This coverage is also known as Medical Payments or Personal In-



jury Protection (PIP). It protects the driver of the rental car when any passengers might not be covered by workers' compensation. Most drivers have this on their own personal policies. However, many gave it up in October, 1991, when Georgia law stopped requiring drivers to carry it. Without this coverage, you as the driver of the car could be liable for any injuries to your passengers, Murphy said.

"Generally, if you are taking business associates with you they would be covered by workers' compensation insurance," Murphy said. "However, when you use a rental car for social events — going out to dinner with clients and their spouses, for example — if a spouse is not covered and is injured in an accident that is your fault, they may look to you to pay the bills."

**How do I protect myself?** Check your personal insurance policy to be sure you are covered. If not, get coverage through that policy, or buy extra coverage from the rental car company. As of early July accounts payable did not allow reimbursement for this expenditure, but Murphy's office was petitioning the financial office to change that.

**Isn't there any easier way to handle this situation? Who has time to read a rental car insurance policy with 10 people in line behind me to pick up rental cars at the airport?** Georgia Tech has a statewide contract with Hertz that should be renewed when it expires in August. All travelers do is check ahead of time to confirm that the Hertz franchise office they will be dealing with in the United States or Canada is participating (most do). Because European insurance laws differ greatly from U.S. laws, travelers to Europe should check with their travel agents to obtain adequate coverage.

The contract number needed to arrange Hertz rentals in the United States or Canada is available through Georgia Tech's Purchasing Department at 894-5006. Through that contract the renter automatically gets \$100,000 per person in bodily injury coverage, \$300,000 if more than one injury, and \$25,000 in property damage without paying extra. (Murphy recommends upping property damage to \$50,000, just in case of a costly accident. There are statutory limits in each state that, in some cases, are too low to be prudent.) The personal injury coverage that you may want if you do not have No-Fault Insurance is available for \$3.95 extra per day.

"We recommend that people take either the coverage provided through Georgia Tech's contract with Hertz, or, if they go to another company, that they take the coverage discussed here — either purchase it or see if it is offered free," he said. "You should not rely on your personal insurance."

Those who need a car for 30 days or more can get a long-term lease and insurance coverage through the state at a lower cost. Contact Murphy at 894-4626 for details.

**One last question: How do I insure business-related equipment I will be transporting in the car?** Call Murphy at the number listed above and he will insure these items before you leave.

*Thanks to Pat O'Hare (OOD) for suggesting this topic. To share ideas via THE CONNECTOR about doing business more efficiently or safely, call Lea McLees at 894-3444.*

### GTRI Employees Elected to General Faculty Standing Committees

Following are the results for elections to standing committees of the general faculty. The names of GTRI employees elected or rotating off are highlighted in bold. All terms last three years, except where noted.

#### FACULTY BENEFITS

**Margaret Horst** (MAL) re-elected.  
Vicky Jackson (Comp) replaces Rebecca Turner (Libr).

#### FACULTY HONORS

Ron Schafer (EE) replaces Ray Flannery (Phys).  
Albert Badre (Comp) replaces John Timpler (Arch).

#### FACULTY STATUS AND GRIEVANCE

Aaron Bertrand (Chem) replaces Jamie Goode (Math).  
Terry Blum (Mgmt) replaces Peter Skelland (ChE).

#### STATUTES

Don Berghaus (CE) replaces Tim Long (E&AS).  
Marilyn Williamson (Libr) re-elected.

#### ACADEMIC SERVICES

Anthony Weathers (EE) replaces James Craig (AE) (two-year term).

**Martha Willis** (MAL) replaces **Lee Edwards** (ESML).

Bob James (Co-op Div) re-elected.  
Linda Brady (Intl Aff) replaces **Kathryn Logan** (MSTL).

#### PUBLIC RELATIONS

Barbara Blackburn (Mod Lang) re-elected.  
Crit Stuart (Lib) replaces Ruth Hale.

#### WELFARE AND SECURITY

Kimberlee Kearfott (ME/NE) replaces Howard Deutsch (Chem/Biochem) (one-year term).  
Erik Ferguson (Arch) re-elected.  
Paul Steffes (EE) replaces Bonnie Heck (EE).

#### COPYRIGHT

Jana Lonberger (Libr) replaces **Michael Furman** (ESML).  
Tim Drabik (EE) replaces James McClellan (EE).

#### SOFTWARE

Mike Furman (EE) replaces Roy Marsten (ISyE).  
Linda Cabot (OIT) replaces John Shilling (Comp).

*Thanks to Gary Lunsford (RSA), Secretary of the Faculty, for providing this information.*

### News In Brief

Maggie Harrison (AERO) and Valli McNeal (ESTL) are joining the team of CONNECTOR associate editors who collect professional, personal and personnel news. Thanks to outgoing editors Marsha Barton (MAPS) and Lincoln Bates (EDL) for their great work!



## Educational Fund Honors Radar Expert Fred Nathanson

By Lea McLees, RCO

Principal Research Engineer Fred Nathanson (RIDL) is remembered by colleagues such as Josh Nessmith (RSA) as a person dedicated to spreading and sharing knowledge throughout the radar community.

Nessmith, also a Principal Research Engineer, recalls as a prime example Nathanson's work on the IEEE's Radar Systems Panel, an international committee that establishes standards and conducts radar conferences. Nathanson was a member of the panel for many years, serving as its chairman in 1983 and 1984.

"The radar panel worked to make sure that younger members of the radar community received visibility," Nessmith recalled. "You have to pass knowledge on — Fred did that with people, and through his books and his teaching."

Now Nathanson's gift of concern for young engineers interested in radar studies will continue, in part because of his thoughtful planning. A year before his June 20, 1993 death in Rockville, Md. from cancer, he arranged with colleague Robert Hill to set up an educational fund.

"His careful planning, so characteristic of his manner, turned to what might be done for others in the area of engineering that had been so engaging to him," said Hill, who worked as an electrical engineer with the Navy Department in Washington, D.C.

The Fred Nathanson Memorial Radar Education Fund will be overseen by the Radar Panel, which is part of the IEEE's Aerospace and Electronic System Society. The fund will promote education in the radar field. The panel will collect donations for one year, after which applications will be taken for educational grants. The grants will be awarded to one or more deserving apprentices of the radar field, in part with the advice of the IEEE's Radar Systems Panel, Hill said.

Nathanson often attributed his move toward radar to his childhood experiences. Born in Baltimore, Md. on January 12, 1933, his attorney father and extended family were quite interested in the fine arts, Hill said.

"Fred would later say (that interest) contributed to his *disinterest* in classical music and his becoming an engineer!" Hill said.

Nathanson earned a Bachelor's Degree in engineering at Johns Hopkins University (JHU) in 1955 and a Master of Science at Columbia University in 1956 with significant scholarship support. He joined JHU's Applied Physics Laboratory in 1956 to work in radar-related signal processing areas. In the early 1960s Nathanson developed digital techniques that were later incorporated into major phased array radar developments. Much of his work was done for the Navy, but was made applicable, through his books, to all radars, Nessmith said.

In 1970 Nathanson became Washington Operations Manager for the Technology Services

Corporation and worked on air defense radar development. He joined GTRI in 1988 as a principal research engineer for RIDL in Rockville, Md.

Nathanson was attracted to GTRI through professional contacts with several GTRI staff members, by GTRI's reputation in radar, and, not coincidentally, by the fact that his son was working at Georgia Tech then and his daughter lived in Atlanta. In a relatively short period of time, Nathanson made significant contributions to GTRI's radar program, Associate Director Ed Reedy (OOD) said. He identified opportunities for research in non-Department of Defense radar applications, including meteorology, was instrumental in helping start GTRI's wind shear radar program, and generated several new ideas for satellite-based radar sensors.

Nathanson was very active in the IEEE at



conferences, on the Radar Systems Panel, and in teaching radar courses around the globe. He is known to most professionals in the radar field via his very popular book, *Radar Design Principles*, published in 1969 by McGraw-Hill and revised in 1991. Nathanson was elected a Fellow of the IEEE — the organization's top rank — in the 1980s. Nessmith presented the award to Nathanson at a meeting in Atlanta.

"I appreciated the opportunity to present the award to Fred," said Nessmith, a Fellow himself. "He was one of the outstanding individuals in the radar field. He was an engineer, a leader and a teacher."

When Nathanson wasn't working on radar, he often was taking pictures, Hill recalls.

"He was active in photography groups and clubs; truly artistic framed works are seen at his home," he said.

Nathanson's wife, Lila, remains in Maryland. His daughter, Janice N. Smith, is an attorney in Atlanta and is the mother of his grandchild, Mitchell. His son Allan, a computer scientist, lives in Gaithersburg, Md.

*Contributions to the Fred Nathanson Memorial Education Fund may be sent to its treasurer, Robert Hill, at 2802 Birdseye Lane, Bowie, Maryland 20715. Checks should be made payable to "Fred Nathanson Memorial Fund." Contributions are tax-deductible. Thanks to Hill, Reedy, Wayne Cassaday (RIDL), and Marvin Cohen (MAL) for providing career information and anecdotes to share with GTRI employees.*

## Calendar


## Events of Interest

*Unless otherwise noted, classes listed below are offered by Continuing Education. Call 894-2547 for more information.*

### August 2

Machinery and Machine Guarding Standards. Through August 12.

Techniques of Radar Reflectivity Measurements. Led by Nick Currie (RIDL). Through August 5.

### August 3

Object-Oriented Programming. Through August 5.

### August 4

UNIX Systems Administration. Through August 6.

### August 9

Object-Oriented Analysis and Design. Through August 11.

The Role of Environmental Audits and Site Assessments in Property Transfers. Through August 13.

### August 13

Legal and Cultural Issues in Multimedia Production.

### August 16

Supervision of Asbestos Abatement Projects: Course and Workshop. Through August 20.

Design and Integration of Voice and Music. Through August 17.

### August 17

Multivendor LAN Troubleshooting. Through August 20.

Radar Design Workshop. Led by Bill Holm (MAL). Through August 19.

### August 23

Order Picking Short Course. Through August 25.

Software and Hardware Documentation Using Multimedia. Through August 25.

### August 24

Designing Asbestos Response Actions. Through August 27.

### August 25

Unix Shell Programming. Through August 27.

### August 26

Demo Day at the Graphics, Visualization and Usability (GVU) Center, 1:30 to 5 p.m. Room 259/College of Computing. All are welcomed. Refreshments served.

### August 31

Voice and Data Security. Led by Stephen Wicker, Electrical Engineering. Through September 3.

**Fred Nathanson was known throughout the radar community as a very accessible leader, writer, and teacher. Before his death he began setting up an educational fund for those interested in his field. His colleagues now are continuing that project. (File photo)**

## Focus on Folks

### Professional Activities

#### Aerospace Lab

**Krishan Ahuja** attended the National Conference on Noise Control Engineering in Williamsburg, Va. May 2-5. He later traveled to St. Petersburg, Russia, to make a presentation on "Flow/Acoustic Interactions" at the International Noise and Vibration Control Conference May 31-June 3. While there, Ahuja was invited by the Baltic State University of St. Petersburg to give another talk on the same topic to faculty and students. Two Russian cosmonauts were educated at that university.

**Rob Michelson** and **Mark Hodges** (RCO) were co-chairpersons of the publicity committee for the National Telesystems Conference held June 16-17 in Atlanta.

#### Communications Lab

**Eric Barnhart** was conference chairperson of the 1993 National Telesystems Conference held in Atlanta, June 16-17. **Dan Howard** served as registration chairperson.

#### Concepts Analysis Lab

**Tom Collins** and **Andy Henshaw** are part of a team of Georgia Tech faculty and students awarded a \$2,000 scholarship from the American Association for Artificial Intelligence. The award was for defraying costs of the team's participation in the AAAI Robot Exhibition and Competition in Washington, D.C. this summer. Faculty advisor for the project is **Ron Arkin** of the College of Computing.

**Dennis Folds**, **Mike Kelly** (Manufacturing Research Center), and **Nazemeh Sobhi** (Turner Fairbank Highway Research Center) presented "ATMS 2000: Hybrid Automation or a 'Lights Out' Traffic Management Center" at the National Telesystems Conference June 16-17 in Atlanta.

#### Countermeasures Development Lab

**Jerry Heckman** attended the 1993 National Telesystems Conference in Atlanta, June 16-17. The meeting addressed dual use technologies and technology transfer.

#### Electronic Support Measures Lab

**Joe Brooks** presented a paper titled "Sensor Fusion for Helicopter Electronic Defense" at the Sixth Annual National Conference on Sensor Fusion, held April 13-15 in Orlando, Fla. **Nick Pomponio** (CMDL) was co-author.

#### Electro-Optics/Physical Sciences Lab

**Mike Harris** and **Don Griffin** were members of the steering committee for the 1993 International Microwave Symposium held in Atlanta, June 14-18. Harris presented a paper on "Quasi-Optical Power Combining of Solid State Sources in Ka-Band." Co-authors on the paper were **Abbas Torabi**, **Bob McMillan** (RIDL), **Chris Summers**, **Jim Wiltse** (OOD), **Stan Halpern** and Griffin.

#### Environmental Science and Technology Lab

**Chris Downing** presented two technical papers entitled "Effectiveness of Cold-Storage Door Protective Devices" and "Classroom Ventilation Versus Indoor Air Quality" at ASHRAE's June national meeting in Denver, Col.

**Paul Schlumper** gave congratulatory remarks to winners of Georgia's school safety belt poster contest during a ceremony at the state capitol. As a representative of Georgia Tech, Schlumper helped judge posters created by students all over the state.

#### Management and Project Support Group

**Charlotte Batson** served as finance chairperson for the National Telesystems Conference held June 16-17 in Atlanta.

#### Microwave and Antenna Technology Development Lab

A paper by **Dayton Adams** has been accepted for presentation at the 23rd European Microwave Conference in Madrid, Spain, scheduled for September. The paper is titled "Armored Phased Array Design."

**Glenn Hopkins** was a member of the steering committee for the MTT-S International Microwave Symposium held June 14-18 in Atlanta. He was in charge of publications. Hopkins also served as technical chair for an EEs of Users' Group meeting in Atlanta that week. He and Eric Myers presented a paper entitled "Design of Beam Switch for Low-Cost Electronically Steerable Antenna for Vehicular Rooftop Communications."

#### Modeling and Analysis Lab

**Walter Horne** and **Brian Hudson** (RIDL) presented "Evaluation of Candidate Millimeter-Wave Radars for Synthetic Vision" at the National Telesystems Conference held June 16-17 in Atlanta.

Also at the conference, **Christopher Barnes** and **Eric Sjoberg** (RSA) presented "A Comparative Study of JPEG and Residual VQ Compression of Radar Imagery." Sjoberg, Barnes and **Karen Moss** (RSA) presented "Precision Approach Radar (PAR) Remote Operation Feasibility Study," as well.

#### Office of the Director

**Jim Wiltse** was a member of the MTT-S International Microwave Symposium's steering committee. He was in charge of special sessions and workshops for the June 14-18 meeting in Atlanta. Wiltse also served as chairperson for a session on sensor signal processing at the National Telesystems Conference June 16-17 in Atlanta.

#### Radar and Instrumentation Development Lab

**Gene Greneker** recently returned from the American Defense Preparedness Association's Joint Industry/Government Symposium on Security. He served as chairman for a session on sensors at the meeting, held June 21-24 in Virginia Beach, Va.

**Bob McMillan** helped organized a workshop on "System Implications of Atmospheric Transmission Effects" at the MTT-S International Microwave Symposium in Atlanta, June 14-18.

**Joe Bruder** was National Telesystems Conference (NTC) Board Liaison during the June 16-17 meeting in Atlanta.

#### Radar Systems Applications

**Sam Piper** presented "Receiver Frequency Resolution for Range Resolution in Homodyne FMCW Radar" at the National Telesystems Conference in Atlanta, June 16-17.

#### Signature Technology Lab

**Rick Moore** spoke at a workshop titled "Material Measurements" at the MTT-S International Microwave Symposium in Atlanta, June 14-18.

#### Threat Systems Development Lab

**George Ewell** was chairperson for a special technical session titled "Selected Russian Microwave Technologies" at the MTT-S International Microwave Symposium in Atlanta, June 14-18.

**Russell Roberts** was a member of the MTT-S International Microwave Symposium Steering Committee. He was in charge of finances for the June 14-18 conference in Atlanta.

### Personnel News

#### Modeling and Analysis Lab

**Walter Horne** has terminated.

#### Microwave and Antenna Technology Lab

**Chuck Chapman** has transferred to TSDL.

**Marlene Aldridge** has transferred to EEEL.

Co-ops **Laurie Bigler**, **Eric Myers** and **Jay Phelps** have terminated.

**Donald Sherman**, **Howard Atkinson** and **Jennifer Grove** have terminated.

#### Threat Systems Development Lab

**David Petruska**, **Dana Robinson** and **David Harris** have terminated.

### Personal Notes

#### Cradle Roll

Brenda and **Robert Howard** (MATD) are the proud parents of a son, Jonathan Robert Howard, born July 5.

#### Wedding Bells

**Frank Sawyer** (MATD) married Belinda Boles on May 28.

#### Our Sympathy

...to **Mike Brinkman** (RIDL), whose father passed away July 6.

...to **Ed Reedy** (OOD), upon the death of his father on June 11.

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