

The GTRI Connector

A Common Malady

"I try to take one day at a time, but sometimes several days attack me at once."

—Ashleigh Brilliant

Quote of the Month

"When two egotists meet, you can be sure it's an I for an I."

—Anonymous

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World's largest compact range now in operation

By John Toon, RCO

The U.S. Army's Electronic Proving Grounds at Fort Huachuca, Arizona, has begun operational testing for what is believed to be the world's largest outdoor compact antenna range.

Designed and built by GTRI under contract to the Army, the range will be used to measure how military vehicles such as tanks and helicopters affect the radiation patterns of antennas mounted on them. Those changes can degrade performance of the antennas.

"The Army is trying to make its communications and tracking equipment as effective as possible," says GTRI project director Henry Cotten. "It is known that antenna patterns get changed when the antennas are placed onto vehicles. Getting information on these patterns will help the Army enhance equipment effectiveness."

Testing large vehicles

Testing done on full-sized vehicles at the range will help the Army evaluate the best locations for installing antennas on its vehicles to minimize any loss of performance. The range can accommodate vehicles up to 70 tons in weight and up to 50 feet in length, testing frequencies from 6 to 40 GHz. In the future, the range also may be used for limited radar cross section studies.

Antennas are normally tested using "far-field" ranges, which consist of two towers whose separation depends on the size of the target and the frequencies being studied. One tower holds the antenna under test, while the other receives the signals. Because the Army wanted to test full-sized vehicles over a wide range of frequencies, a conventional far-field range turned out to be impractical, Cotten says.

"If you start getting larger objects and higher frequencies, the distance between the towers becomes larger," he says. "At high frequencies and with larger targets, you are talking about towers many miles apart—and the problems of maintaining two separate facilities."

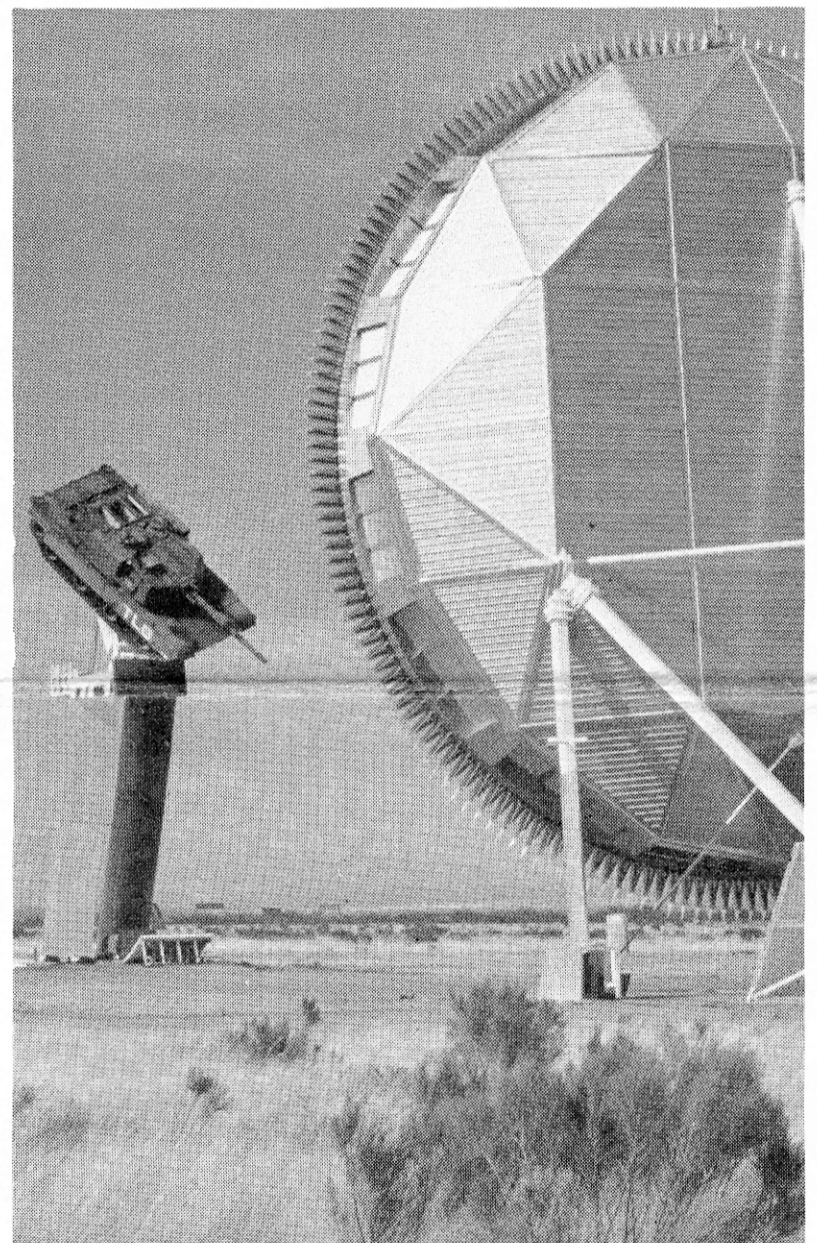
Solving the distance problem

To solve the problem, the Army elected to build a compact range, a type of antenna test facility normally built indoors. "The compact range allows them to generate the same kind of field at a much closer distance," Cotten says.

The facility consists of two main components: a large parabolic reflector 75 feet in diameter and a positioner that rotates and elevates the targets. The positioner can hold vehicles as large as the Army's M-1 and M-60 tanks 42 feet off the ground for study.

"By turning the vehicle around and tilting it, you can look at the antenna pattern from all sides and angles of the tank," says Cotten. "You can look at all of its hemispherical coverage."

The information can be used to generate a three-dimensional plot of the antenna field. The plot may show antenna weaknesses in certain areas, meaning the vehicle might have difficulty receiving certain signals—potentially leaving it vulnerable to hostile



forces. Gaining information about this antenna field pattern allows engineers to relocate the antenna or to install a supplementary

Continued on page 2

An Army tank undergoes testing at the world's largest outdoor compact antenna range. Located at Fort Huachuca, Arizona, the range was designed and built by GTRI. (Photo by Henry Cotten)

Observed & Noted

Want to know who the new lab directors are? Look on page 2.

Learn about the new badge access system for GTRI buildings. Details are on pages 4 and 5.

THE CONNECTOR spotlights GTRI's Olympic volunteers.

Read about them on pages 6 and 7.

An article on ergonomics in the workplace in the July 23 *Atlanta Journal and Constitution* featured comments by GTRI scientists Mike Kelly and Dan Ortiz. To find out what other coworkers have been up to, turn to page 8.

READ THIS!

The Optional Retirement Plan (ORP) has been signed by the Governor and is now state law. To be eligible to participate, you must have faculty status and less than 10 years of creditable service under the Teachers Retirement System of Georgia (TRS) as of July 1, 1990.

If you wish to enroll in the ORP, you must terminate participation in TRS by September 30. This is a one-time-only option that must be exercised this year.

All eligible employees will receive a letter from GTRI Director Donald Grace shortly giving details of the optional plan. If you think you're eligible and you don't receive a letter, contact Betty Yarborough, HRD, at 894-3445.

The Business Office will hold an informational seminar several times in August and September. A financial analysis spreadsheet also will be available for individual use. Seminar times and places will be announced in the August 6 WHISTLE and will be on PROFS Logon. □

**News
&
Notes**

Outdoor compact range

Continued from page 1

antenna to offset the deficiency.

The compact range was set up to test frequencies ranging from 6 to 40 GHz, though it was designed to accommodate future expansion for testing frequencies up to 100 GHz. The rigidity of the structure and its smooth surface treatment should allow the range to be used at such higher frequencies, Cotten says. "We tried to build in as much future capability as possible," he adds.

Antenna measurements take place inside a "quiet zone" created by the test range. This quiet zone is an area where the electromagnetic fields are relatively stable, permitting accurate measurements.

In most compact ranges, a substantial portion of the reflector must be left inactive to allow electrical energy to dissipate at the edges. Without proper dissipation, the energy would create ripples and disrupt the fields under study. The requirement for an inactive area means that most compact ranges can produce quiet zones only about half the size of their reflectors.

For the range at Fort Huachuca, Georgia Tech engineers used a special edge treatment that allowed them to use a much larger portion of the reflector. The special treatment, designed by Dr. Ed Joy of Tech's School of Electrical Engineering, consists of serrations or petals that dissipate the electrical energy in a relatively small area. (Georgia Tech has applied for a patent on the petal design.)

The positioner and reflector were built by commercial firms under subcontract to Georgia Tech, though Tech was responsible for the overall design and integration of the facility.

The USAEPG had relied previously on an "arc" range that could measure frequencies of less than 8 GHz. The growing use of higher frequencies led the Army to develop a new facility. □

New GTRI emerges

July traditionally brings summer heat and a new fiscal year. This year, it also brought a newly restructured GTRI. The day-to-day research and support services continue without a hitch, but people are getting used to new administrative units and new management systems.

Many of the changes have been reported in previous issues of THE GTRI CONNECTOR and in the COUNTDOWN! newsletter. You are invited to refer to the May issue of the CONNECTOR and the May 18 and June 15 issues of COUNTDOWN! for the 'what' and 'who' details of the expanded OOD operation and the new Management and Project Support (MAPS) groups.

Listed below are the directors for the 22 newly designated laboratories. An interim director has been appointed for those laboratories for which a national search will be conducted.



Nick Currie (left) and Gene Greneker stand in front of the Waterside Security Program test bed during tests of the system at Panama City, Florida, in May.

- Advanced Technology: Donald Bodnar (interim)
- Aerospace: Robert Cassanova (interim)
- Communications: Bruce Warren (interim)
- Computer Science & Information Technology: Randolph Case
- Concepts Analysis: William Sears
- Countermeasures Development: Harry Andrews
- Economic Development: David Swanson
- Electronic Support Measures: Larry Holland
- Electro-Optics: Robert Hyde
- Electromagnetic Environmental Effects: Hugh Denny
- Electromagnetic Science & Technology: Milton Cram
- Engineering Sciences: William Youngblood
- Environmental Science & Technology: John Nemeth
- Huntsville Research: Richard Stanley
- Materials Science & Technology: Kathryn Logan (interim)
- Microwave & Antenna Technology Development: Bill Cooke
- Physical Sciences: Chris Summers (interim)
- Modeling & Analysis: Trent Farill
- Radar Systems Applications: Robert Trebits
- Radar & Instrumentation Development: Evan Chastain (interim)
- Signature Technology: John Meadors
- Threat Systems Development: Joe Parks

Executive Associate Director Bob Shackelford also announced plans to beef up GTRI's economic development and technology transfer activities. "As part of our State Charter, we plan to intensify our outreach activities and develop a more effective technology transfer mechanism for linking GTRI's research operations to technology needs in the state's industrial sector," he said in a memo to GTRI faculty and staff. He added that GTRI and the Economic Development Laboratory will be expected to play an important role in the evolution of an overall Georgia Tech economic development plan now being prepared by the President's Office.

Leaders of the three new program incubators—Acoustics/Vibration/Flow Control, Manufacturing Technology, and Technology Policy—have not yet been publicly announced. □

GTRI helps Navy protect bases from intruders

Navy bases with high-value protected assets, such as nuclear submarines, must be shielded from intruders who might approach from both land and waterside. The more difficult task of the two is to protect the water interface.

Gene Greneker and Nick Currie of GTRI are assisting the U.S. Navy as consultants on the development of the Waterside Security Program (WSS). They are working for the Naval Ocean Systems Center in Hawaii through a subcontract with B-K Dynamics of San Diego, California.

"The purpose of WSS is to detect boats, whether approaching with innocent or malevolent intent, in time to allow the Navy to defend protected assets from terrorist or other small operational forces," Greneker says. "This system must be capable of detecting intruders early, pinpointing their location, and determining where they are heading."

The system is being developed using off-the-shelf components. Greneker and Currie are working with some of the suppliers to 'fine-tune' their products to meet Navy specifications. Once developed, the system will be disseminated to Navy bases worldwide.

Greneker and Currie participated in ten days of preliminary testing of the system at the Naval Coastal Systems Center at Panama City, Florida, in May. Future testing will continue in 1990. □

"We plan to intensify our outreach activities and develop a more effective technology transfer mechanism for linking GTRI's research operations to technology needs in the state's industrial sector."
—Bob Shackelford

China meeting held—a year late

The Georgia Tech-sponsored International Conference on Millimeter-Wave and Far-Infrared Technology was held in Beijing, China, June 18-22—exactly one year after it was originally scheduled. Plans for the conference last year were interrupted because of internal political problems in China at that time.

GTRI's Jim Gallagher was the general chairman of the event, while Bob McMillan (GTRI) and H. C. Hu, director of the Beijing Vacuum Electronics Research Institute (BVERI), were program co-chairmen. Other GTRI attendees were Eric Barnhart and Abbas Torabi, both of whom presented papers and presided at technical sessions, and Gail Tucker, conference secretary. Georgia Tech authors of papers read at the meeting, in addition to Barnhart, Gallagher, McMillan and Torabi, were: H.M. Harris, Joe Galliano, Bob Platt, Chris Summers, Devon Crowe, Charles Rucker, Dan Campbell, Gerald Grams, Paul Wine, Mark Gouker, and F.J. Liao (visiting scholar).

The 100 attendees came predominantly from the People's Republic of China, but included persons from the United States, the USSR, Japan, Federal Republic of Germany, Belgium, England and Finland. "Reaction to the events of Tiananmen Square greatly lowered the non-Chinese attendance," Gallagher said. "But we felt the conference, which had undergone years of planning, should be held."

In issuing the conference invitation, Gallagher and McMillan noted: "We as scientists and engineers should be apolitical in our views. We will be associating and conferring with colleagues who have very much the same aims and desires as we have, namely the dissemination of knowledge about IR and MMW technology."

They added: "It is possible that your presence at this conference and interaction with Chinese scientists and engineers will make some small contribution to the influx of [Western] ideas, and will therefore contribute to peaceful change, much as these ideas have contributed to change in Eastern Europe."

Both Gallagher and McMillan commented on the excellence of the papers given. "Many of the Chinese papers were theoretical," McMillan said. "The Chinese are great theorists. This comes in large part from not having a lot of equipment available."

However, in commenting on the equipment display by Chinese exhibitors at the conference, Gallagher said, "They make some state-of-the-art waveguide test equipment, and it's cheap."

Co-sponsors of the event, besides GTRI, were the Chinese Institute of Electronics, Microwave Theory and Techniques Society of the IEEE, Beijing Section of the IEEE, National Natural Sciences Foundation of China, and the U.S. Army Research Office. □



The key organizers of the Beijing Conference on Millimeter-Wave and Far-Infrared Technology get together for last-minute planning. Shown left to right are program co-chairmen Bob McMillan (GTRI) and H.C. Hu (Beijing Vacuum Electronics Research Institute), Mrs. Hu, and general chairman Jim Gallagher (GTRI) at dinner in Dr. Hu's home. (Photo by Ann McMillan)



GTRI researchers Abbas Torabi (left) and Eric Barnhart presided at technical sessions and presented papers at the Beijing Conference. (Photo by Bob McMillan)

GTRI cosponsored an international scientific meeting on millimeter-wave and far-infrared technology in Beijing, China, in June. Organizers of the meeting included Jim Gallagher and Bob McMillan.

GTRI reps elected to faculty bodies

Neal Alexander, Hugh Denny, and Kathy Schlag are GTRI's new representatives to the Faculty Executive Board. And the following have been elected to Standing Committees of the General Faculty: Margaret Horst (Faculty Benefits), Kathryn Logan and Lee Edwards (Academic Services), and Mike Furman (Copyright). □

New videotape highlights GTRI research activities

The Research Communications Office (RCO) has a new videotape on Research at GTRI. This video is 15 minutes long and presents highlights of GTRI's research activities. It was made in conjunction with WXIA-TV/Channel 11. GTRI Director Don Grace said, "We wish to express our appreciation to Mr. Harvey Mars, president and general manager of WXIA-TV for providing facilities, time and energy to make this an excellent production." You can check out or obtain a copy of this videotape by calling RCO at 894-3444. □

News & Notes

Sensor fusion in target recognition

By John Toon, RCO

If pilots could combine information from infrared sensors, millimeter-wave radars, multi-spectral satellites and other sources, they could do a better job of spotting hostile targets amid the jumble of background clutter.

Researchers at GTRI have produced a multi-sensor simulation tool that could help visualize how pilots might use multi-sensor, multi-platform information for spotting targets—while assisting in the development of automatic target detection algorithms and new sensors.

"If you have radar images, infrared images, and other data, you can use that joint information to help determine whether or not you have a target," says Nick Faust of the Electro-Optics Laboratory. "What we are trying to do is provide a tool that would show people what it would be like if you could merge that information."

Real-time sensor fusion would require airborne computing power that may not be available for five or ten years, Faust notes. But the Georgia Tech simulator, known as GTSPECS, allows engineers and scientists to work on other portions of the sensor fusion problem while they wait for computing power to catch up.

Simulator database

The simulator includes a database of infrared, satellite, and synthetic aperture radar (SAR) images merged to show data from each source in a different color. It was developed by combining infrared scene and target simulations, simulations of radar cross section returns, and landscape information provided by LANDSAT satellites.

In real life, the data could come from three different platforms: a low-flying aircraft carrying a forward-looking infrared sensor (FLIR), a synthetic aperture radar on another aircraft, and a satellite high in space.

The combination was difficult because each sensor requires different inputs and produces data in different forms. Infrared, for instance, measures the thermal output of targets, making information about the target's exhaust and cooling systems important. Radar measures returns and backscattering from sharp edges and corners of targets. In addition, the infrared images change according to time of day and the season.

How the pilot sees

Aside from the simulated targets, the GTSPECS designers also had to consider the background behind the target, using LANDSAT data to correct scene distortions produced by radar. Finally, the data also had to be converted to a format that the pilot can readily interpret.

"The pilot will see the infrared in blue, the near-infrared in green, and the radar return in red," Faust explains. "You are mapping everything back to the perspective view, which is the most normal view for a human. The pilot can be perceiving all three sensors from all three platforms at the same time."

Information from different sensors is now displayed on different screens and in different formats, making it difficult for pilots to analyze.

The database represents a different approach toward the difficult problems of simulating sensor fusion. Instead of taking actual sensor data and trying to generalize it to broader scenes (the semi-empirical method), the Georgia Tech researchers began with simulated images and are attempting to apply this 'first principles' understanding to model a wide range of real conditions.

"If you really have good understanding of the thermal physics, you can come up with an infrared model of what it ought to look

like under all conditions," Faust says. "We are trying to check this model against measured data, rather than driving the model from measured data."

The simulator relies on the ability of the human eye to understand spatial correlations in complex images—even when computers might have difficulty with them.

"Your eye is able to take these red, green, and blue images and merge them to make some sense out of the information," he explains. "What you are looking for with your eye is the spatial correlation."

Target recognition algorithms being developed from GTSPECS will rely on the pilot to help the computers focus on most likely targets.

Current status

The GTRI researchers are currently validating their database against measured target and scene information to determine how well it would describe real combat situations. If its information correctly represents the results of sensor fusion, the database could be used to develop and test automatic target detection algorithms.

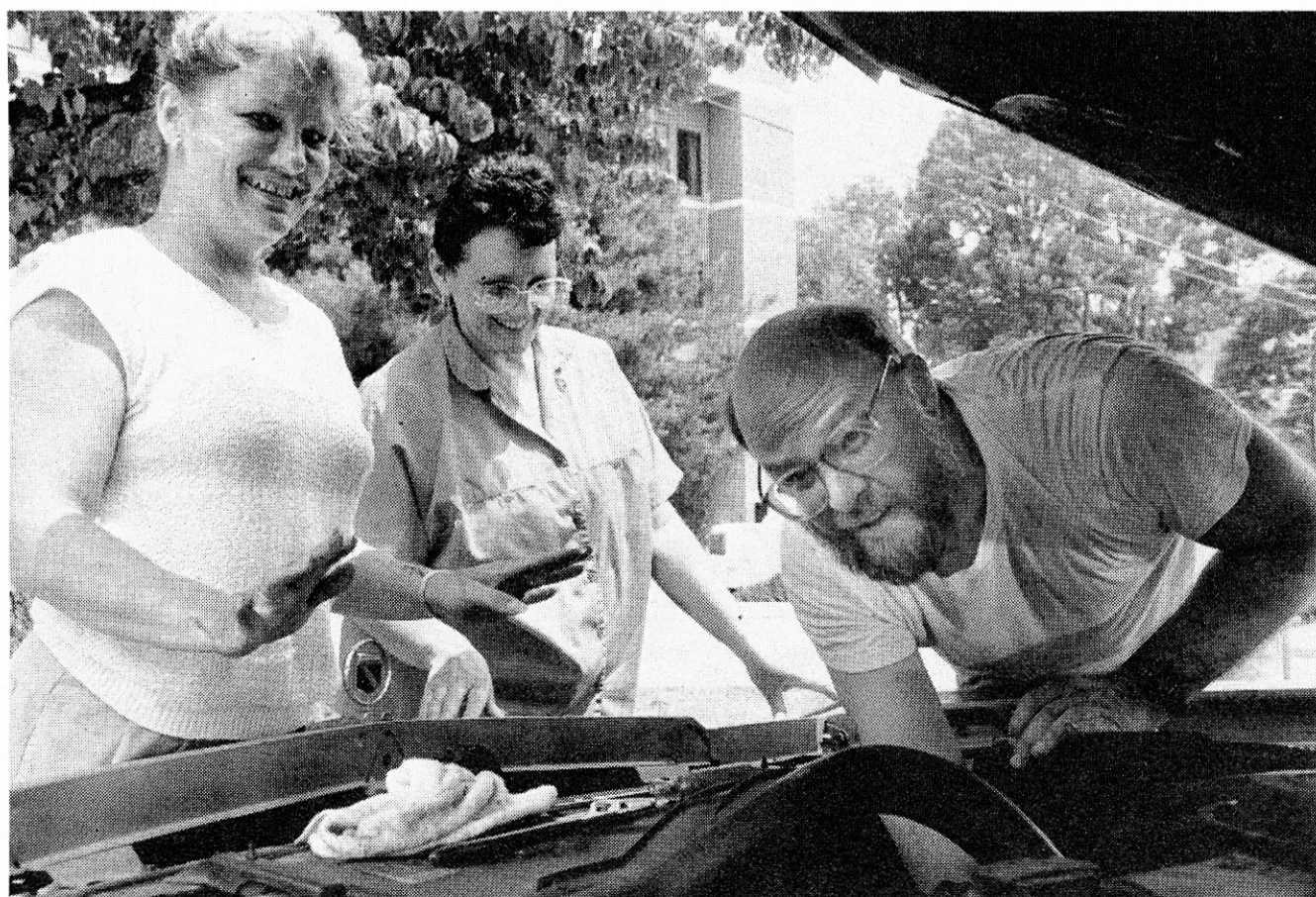
"What we have is a synthetic scene generator system that allows you to exercise these kinds of algorithms," Faust adds.

The work was sponsored by GTRI's Senior Technology Guidance Council, using several software programs developed under military contracts. The research team included Bill Holm, Margaret Horst, and Keith Vaughn of the Modeling and Analysis Lab, Albert Sheffer of the Electro-Optics Lab, and M.S. West. □

"We're not trying to prevent anyone from entering our buildings who has business there. We are trying to create a safer environment for our people."

—Bob Lang on the new badge access control system

Chivalry is not dead department: Bob Hyde changes a radiator hose on the car of damsel-in-distress Patti Altman (center) while Brenda Hill assists in the operation. (Photo by Joe Schwartz)



Badge access system will protect GTRI buildings

The new badge access control systems for selected buildings within GTRI will be activated August 15. According to Research Security Director Bob Lang, the systems are being installed to provide a safer work environment and, as a side benefit, to comply with the new rules regarding control of U.S. government classified information within those buildings.

Tom Jones, manager of Facilities Management, has been working with Georgia Tech Plant Operations for some time to get the system ready Tech-wide. Jones says, "The system has been approved for use at Tech, with GTRI and the microelectronics lab taking the lead in this endeavor."

Badge identification

Research Security Office personnel are photographing all employees who need access to the Centennial Research, Electronics Research, Baker, and O'Keefe buildings, and the Cobb County Research Facility. They will be issued picture identification badges to distinguish them from the casual visitor who may enter the area. Lang says the badge

should be worn on the outer garment above the waist by either a clip or a chain which Research Security will supply.

"We're not trying to prevent anyone from entering those buildings who has business there," Lang explains. "We are trying to create a safer environment for our people." He adds that the system also will facilitate compliance with government rules regarding classified information by providing 'perimeter security' to locations housing such material while being flexible enough to allow each facility to interpret those rules in light of its own needs.

"One of the requirements mandates that we inspect articles at those locations housing classified material in order to identify material being removed from or taken into the facility without the proper authority," Lang says. "But this requirement doesn't mean we are going to search everyone who comes into the building. Inspections will take place randomly, and notices will be placed within those building areas that contain the classified information so that employees will be alerted that if they enter this particular area, an inspection of certain articles may be required."

Lang stresses: "The safety and security of our most valuable asset, our people, is foremost in our minds with this program. Fortunately, we are able to comply with the Department of Defense regulations at the same time."

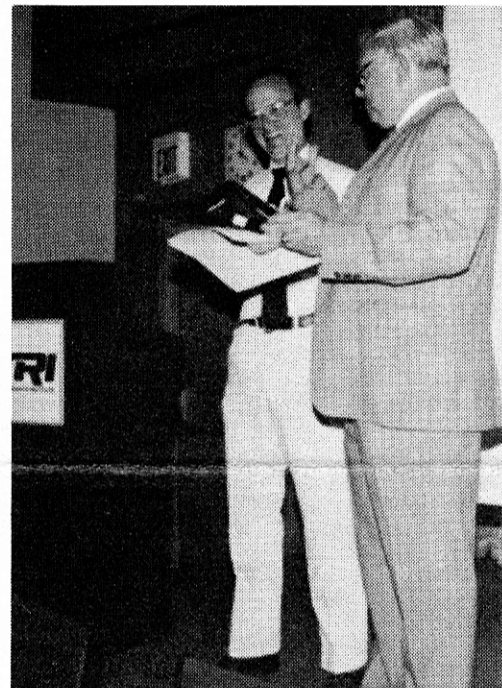
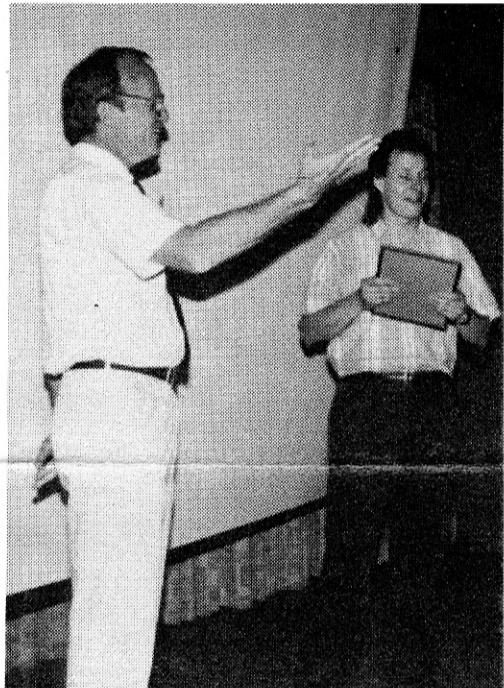
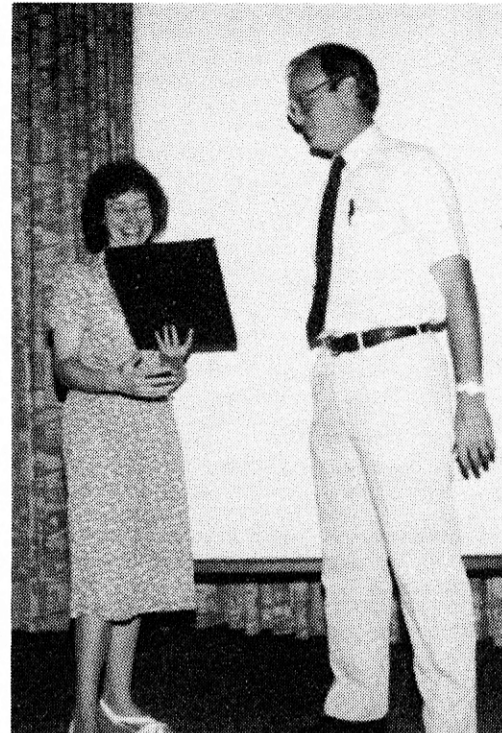
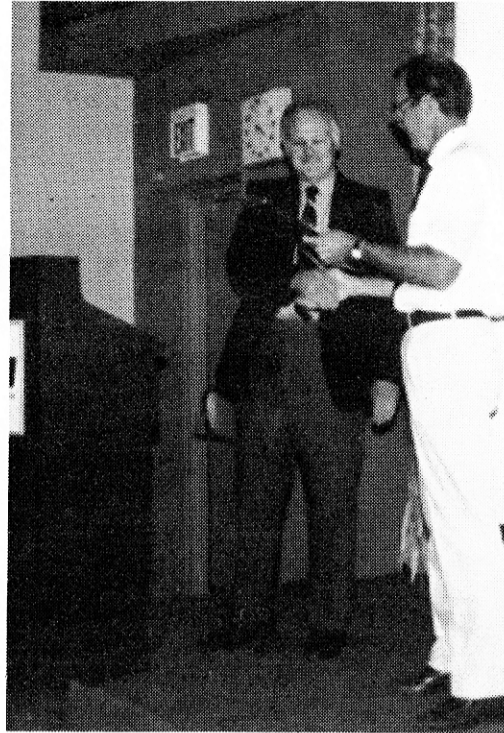
Here's how it works

This is how the new system will work: During the work day, you will simply show the building attendant your badge to gain access. Visitors will be issued a visitor badge and will be sponsored while in the building. The sponsor will be required to escort the visitor at all times when accessing controlled areas.

For campus buildings, after-hours and weekend access will require 'swiping' the badge through the card reader located on the entrance door. At Cobb County, card reader access will be required at all buildings within the complex at all times, with the exception of the reception lobby in building #1.

Lang cautions against 'piggybacking': "This occurs when an employee uses his or her badge to gain access, then holds the door open for all others to enter. Unless you know for sure that everyone with you has a badge, refrain from this practice. It's dangerous, circumvents the purpose of building security, and could lead to someone being hurt or items being stolen."

Lang stresses that everyone is welcome at Tech and GTRI. "It's just that we'd like to control the ability to gain access to areas within buildings that may contain classified or even sensitive proprietary information. Furthermore, just knowing that a stranger can't walk in off the street and roam freely within the building is a comforting thought, especially when most of your coworkers are out to lunch or gone home for the day." □



RAIL employees got together June 22 for a final party prior to the July 1 restructuring. As RAIL had been in existence for more than 13 years, there were many good times and people to remember. These pictures show some of the highlights of the event. Clockwise from top left: (1-2) Lab director Ed Reedy presents plaques of the Tech tower to Jerry Eaves and Maggi Harrison in recognition of and thanks for their loyal support since RAIL's formation. (3) Charlie Crawford gives Ed a plaque showing 'Buzz' with a rotor on his back to thank him for his foresight in establishing the successful Aviation Technology Branch. (4) Ben Perry reads a diploma presented to Ed outlining some of his and the lab's highlights since 1977. (Photos courtesy of Maggi Harrison)

TechMate will market GTRI's broiler house control system

Engineers in GTRI's Agricultural Technology Research Program have been developing and field testing a computerized poultry house monitoring and control system since 1984. Now GTRI has signed a licensing agreement with TechMate to market the most recent design.

TechMate, a Lavonia, Georgia, company specializing in applied technology for the poultry and livestock industries, will be offering the Poultry Environmental Control System (PECS) as its top-of-the-line poultry house computer system.

PECS is a distributed computerized control system for managing and controlling environmental conditions in the broiler house. It also is designed to aid in integrating the broiler house with computer systems used in other stages of broiler production, such as the hatchery and feed mill.

It has a very rugged hardware protection system designed to deal with electrical power surges, high dust and humidity, and even, to

a limited extent, lightning. If a power failure occurs, PECS has a built-in backup system to protect flocks. The distributed nature of the system allows for components to be independent of one another while sharing information and computing power. If one part fails, other parts can continue to function. One useful feature is its built-in ability to communicate with other microcontrollers. And the software is easy to maintain and modify.

PECS project director Wayne Daley hails the commercialization of the new technology: "The main purpose of GTRI is to develop technology to benefit industry, and marketplace availability is an appropriate end result of the research performed at GTRI," he says.

Craig Wyvill, director of the Agricultural Technology Research Program, believes that commercialization demonstrates that the design is now ready to use by poultry producers—it is no longer just experimental. □

**Profile
&
Insight**

GTRI staffers support Olympics campaign

By Ginger Pinholster
Photos by Joe Schwartz

(EDITOR'S NOTE: The article below follows up on two articles about GTRI's Olympic efforts in the October 1989 CONNECTOR. It mentions only a sample of GTRI players who have donated their time and expertise to the Olympic effort. If you know of others, please tell us; we'll try to include them in future features.)

When Georgia Tech faculty, staff and students gather en masse to cheer and clap for visiting members of the International Olympic Committee (IOC), the gesture makes a strong statement: Atlanta and Georgia Tech want the Olympics. Some observers believe this type of grassroots support gives Atlanta an edge in the competition to host the 1996 Summer Games.

Far from any ivory tower, members of the Georgia Tech Olympic Coalition (GTOC) have rolled up their shirtsleeves to support the bid. The grassroots organization includes GTRI employees too numerous to mention here, but a few names follow.

- As volunteer director of the GTOC, Mike Furman (Electronic Support Measures) works closely with the group's faculty/staff coordinator, POD's Pamela Richmond, and with the student coordinator, Rich DeAugustinis. Together, they coordinate efforts with the Atlanta Organizing Committee, the group in charge of the city's bid.

- Accountant Sherri Odom serves as Cobb County coordinator for the GTOC. Other group members report that Odom has worked nonstop, particularly during the May 19 intra-collegiate event staged by various Georgia colleges in celebration of the Olympic bid. (Highlights of the event included a run from Athens to Atlanta and parachute jumping.)

- Along with Mike O'Bannon (OOD), Mike Sinclair (OIP) heads up the research team that developed Georgia Tech's interactive Olympics video presentation, which allows IOC members to 'tour' proposed athletic facilities via computer graphics. A group directed by Nick Faust (Electro-Optics) developed a central portion of the system. (For details, see article in October 1989 CONNECTOR.)

- From Design Services, Erick Beebe has donated research time to help the video production team. While admitting that he is motivated partly by personal goals (he wants to



Gail Gunnells, OCA attorney: "I try to do whatever the GTOC needs me to do. Grassroots, popular support is our best shot at bringing the Olympics to Atlanta."

learn more about the technology), Beebe points out that the Olympics would benefit Georgia Tech by giving the multi-media program a strong shot in the arm.

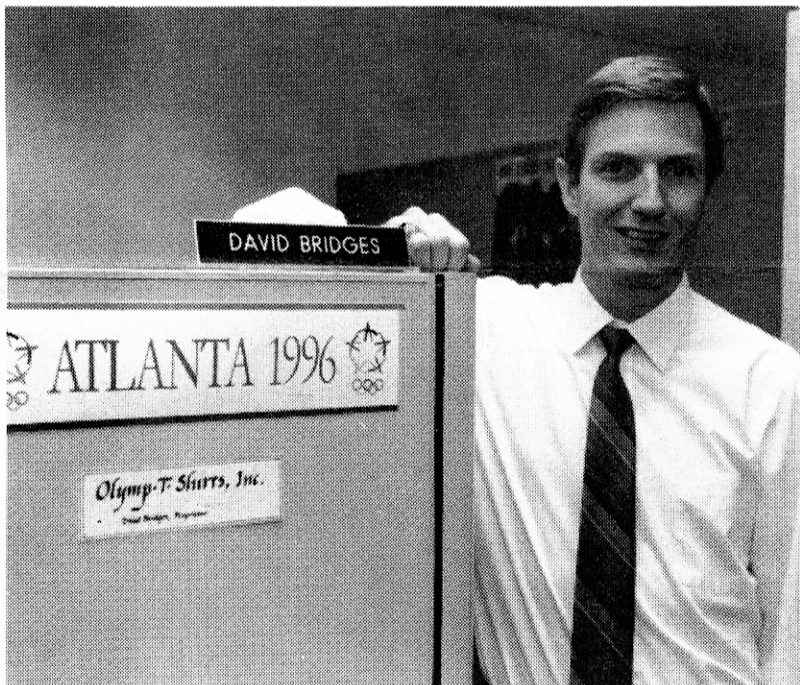
- Joe Bradley of Modeling and Analysis donated his expertise to blow up dozens of balloons during a recent promotional event.

- In the machine shop, Gene Dixon, Carroll Garrett, and others transformed an unassuming radar dish into an authentic-looking replica of the official Olympic torch. Starting with equipment donated by Scientific Atlanta, the machine shop staff located a forgotten butane tank in one of Georgia Tech's warehouses. "We turned the radar dish upside down and put a two-gallon paint bucket in it to use as a burner for the gas," Garrett explained. "The thing looked pretty good once we got it finished." The torch conversion was done with the permission and encouragement of OOD Assistant Director Pat O'Hare.

- A crowd of OCA employees—including Gail Gunnells, David Bridges, Faith Gleason, and Gail Askew—have contributed an infinite number of hours to the effort. Most recently, Gleason has worked to locate students who speak the native language of visiting IOC members. "I've learned to say 'Welcome' in five languages," she says.

- GTRI accountant Janice Green and HRD's Gay McLarin help maintain the momentum on campus by collecting piles of news clippings and making posters in support of the Olympics. A talented GTOC fundraiser, McLarin notes that managers like Betty Yarborough (HRD) assist the effort by backing employees who want to participate in the campaign. "I think the Olympics would bring international recognition to Georgia Tech,"

(L-R) Janice Green, GTRI accountant; HRD manager Betty Yarborough; and Gay McLarin, administrative assistant, HRD. "It's exciting to be a part of the GTOC," Green says. "I feel like I'm really contributing to something that will help the city and the school."



David Bridges, contracting officer, OCA: "Georgia Tech stands to benefit greatly, particularly because of the athletic and housing facilities they have planned as part of the Olympics."



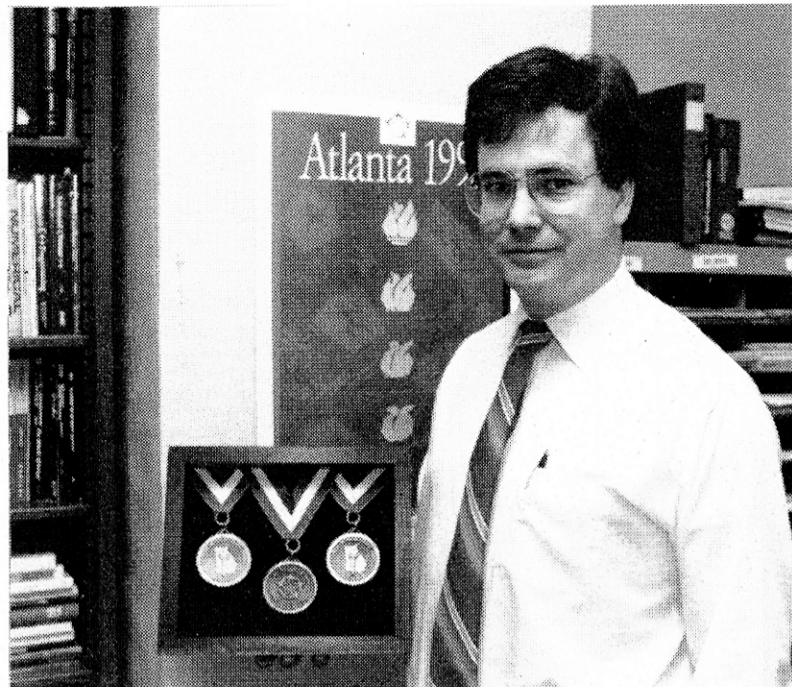
Yarborough says. "It deserves our full support."

• PPC manager Paul Thomas and his staff have provided invaluable assistance with printing and copying tasks. And Julie Caruso and Steve Watt of GTRC also have played an important role in the Olympic bid, according to Pamela Richmond.

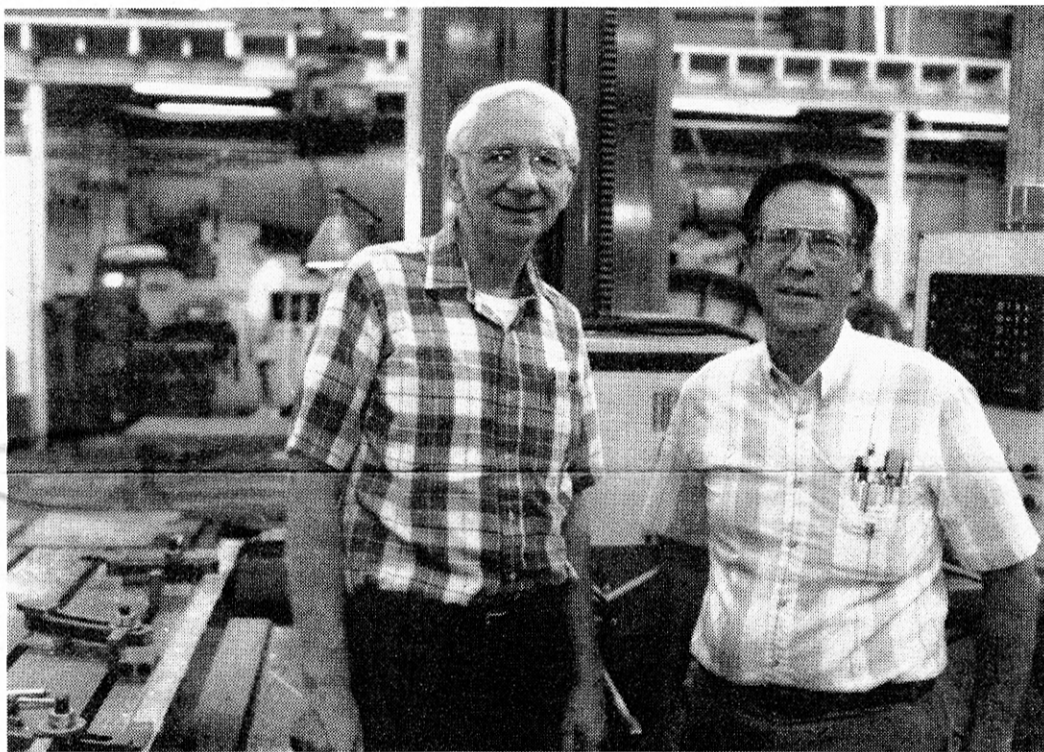
Atlanta's nearest competitors for hosting the 1996 Olympics are Athens, Greece; Toronto, Canada; and Melbourne, Australia. Each city has its particular advantages, as well as drawbacks, but Richmond believes Atlanta has a better than average shot at the games. "We are the only city that has a grassroots organization that greets the IOC members in their own languages," she says. "We show enthusiasm, and that's going to help us a lot."

Mike Furman, director of the Georgia Tech Olympic Coalition: "If Atlanta wins the Olympics, it will bring a windfall to Georgia Tech. I want to contribute to that." ▼

Machine shop foreman Gene Dixon (L) and manager Carroll Garrett. "I'd like to see us get the Olympics, primarily for Georgia Tech," Garrett says. "The games would mean new facilities like dorms." ▼



Contracting officer Faith Gleason, OCA: "Why do I want to support the Olympics? Because I want to see the games for free! Seriously, I would like to attend the Olympics, and this may be my only opportunity." ▼



GTRI CONNECTOR gets a new look

Since GTRI has started the new fiscal year with a new structure, we decided that THE GTRI CONNECTOR deserved a new look, too. Here is the first issue of the new, expanded CONNECTOR. It boasts a more flexible and interesting layout, one we hope you will find more inviting and readable. The typeface is Garamond, the official Georgia Tech typeface as featured in the Georgia Tech logo. This brings our publication into line with other Tech publications, adding to Tech's corporate image.

The graphic concept was created by Everett Hullum, a professional designer who was responsible for the redesign of the GEORGIA TECH ALUMNI MAGAZINE and RESEARCH HORIZONS. We hope you like it!

New associate editors appointed

The restructuring of GTRI also necessitated the naming of new associate editors for the CONNECTOR. They are essentially based on the Management and Project Support (MAPS) groups, the new geographically based administrative units. The associate editors and

the localities which they will cover are as follows:

- Lincoln Bates—O'Keefe Building and regional offices
- Marsha Braswell—Cobb II (radar, aerospace, acoustics)
- Janice Davis—ERB Building plus Huntsville
- Carey Floyd—Cobb I (threat, microwave, antenna research)
- Joanna King—Baker Building
- Janice Manders—OOD
- Charles McCullough—Service and Fiscal groups
- Kathie Prado—CRB Building

They will be working through lab and service unit directors to solicit news from you, but we hope you won't hesitate to take the initiative and send them your news yourself. Their telephone numbers are listed in the mastbox on page 8.

We also want to thank the retiring associate editors who have represented you so well the past five years: Cheryl Barnett, Maggi Harrison, Ginny Myers, Rhonda Okerberg, and Gail Tucker.

News tips always welcome

While we're at it, we'd like to make a plug for general news and pictures from you, the

reader. Send us story ideas about yourself and your coworkers, news tips on interesting research projects, and suggestions about features you'd like to see. Please send your news to GTRI Connector, RCO/GTRI, MC 0800; call Martha Ann Stegar at 894-6988; or PROFS MSTEGAR. Don't forget to identify the unit in which you work. The deadline is the first Tuesday of each month. □

Picnic spot available

Want to escape from the office cocoon and enjoy an outdoor break from the work routine? Have lunch or schedule a meeting under the trees at GTRI's newest picnic spot—the lot on the southeast corner of Tenth and Dalney.

The old house that stood on that corner has been torn down, the lot has been leveled and grass planted. According to Tom Jones, when the grass is well established, hopefully by the end of July, the lot will be furnished with picnic tables, benches and trash receptacles. Enjoy, everyone! □

THE CONNECTOR has a new format and a new set of associate editors. And more room for news from you, the reader, too.

Focus on Folks

Scientific meetings and learned papers dominated the June scene, along with two weddings and three births—all boys.

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Professional Activities

(EDITOR'S NOTE: Since this column reports on staff activities prior to July 1, the headings reflect the organizational setup in effect prior to the restructuring.)

ECONOMIC DEVELOPMENT LAB

Mark Demyanek has obtained the Certified Industrial Hygienist designation from the American Board of Industrial Hygiene.

Claudia Huff is the new vice president of the Atlanta Chapter of the Society for Technical Communication.

In late June, **Rick Tate** and **Rich Combes** presented papers at the 15th Annual Meeting of the Technology Transfer Society in Dayton (OH). The former was titled "Manufacturers' Readiness for Global Marketing: A Case Study in Georgia" and the latter "University Programs to Stimulate Technology Transfer."

The Technology Transfer Society has approved a chapter for Georgia, and **Dave Swanson** and **Norris Garmon** are members. The Society also has tapped Atlanta for its 1992 annual conference.

In mid-June, **Elliot Price** and eight other representatives of the Central Savannah River Area visited Sweden to develop a 'sister region' relationship with Vasternorrland.

Jimmy Dunn, Jr. has been selected for inclusion in the 1989 edition of Outstanding Young Men of America.

Our apologies to **Ted Courtney**, whose name was misspelled in the June Professional Activities column.

ELECTROMAGNETICS LAB

Jim Gallagher was general chairman of the International Conference on Millimeter-Wave and Far-Infrared Technology held in Beijing, China, June 18-22, and **Bob McMillan** was program co-chairman.

McMillan was co-moderator of a workshop on Atmospheric Effects, and Gallagher of a workshop on Lasers. Taking turns as session moderators were **Abbas Torabi** (Sub-MM—IR Detectors/Fast Detectors; Integrated Circuits III), Gallagher (Quasi-Optics), McMillan (Atmospheric Effects), and **Eric Barnhart** of ECSL (Applications/Systems II). Torabi read **Chris Summers'** invited plenary talk on "Resonant Tunneling Devices and Their Applications to Millimeter Wave and Infrared Technologies." McMillan read a paper by **Joe Galliano** and **Bob Platt** on "Advanced Microwave Precipitation Radiometer." Other papers and their authors were: "IR Radiation Transfer from Earth," **Devon Crowe**, McMillan and Gallagher; "Millimeter-Wave Substrate Mounted Antenna Measurements," **Mark Gouker** and Gallagher; "Resonant Tunneling Studies of Multiple AlGaAs Quantum Well Devices," Torabi, Summers, **H.M. Harris**, and **Charles Rucker**; "Pressure Broadening in the Millimeter Wave Spectrum of Freon," **Dan Campbell** and Gallagher; "Atmospheric Spectroscopic Investigations in a Large Cryogenic Pressure Chamber," **Gerald Grams**, Gallagher, and **Paul Wine**; "Millimeter Waves for Communications," Barnhart; "Delta-Doped Heterojunction Structures for High-Speed, High-Power MODFETs," Harris and Torabi; and "Devel-

oping Status of Millimeter Wave Tubes in China," **F.J. Liao** (visiting scholar) with Chinese colleagues.

A paper entitled "Kinetics of the Reactions of IO Radicals with NO and NO₂," by **Ed Daykin** and **Paul Wine** appeared in the May 31 issue of *The Journal of Physical Chemistry*.

The following persons presented papers at the XIXth Informal Conference on Photochemistry in Ann Arbor (MI) in late June:

Kevin Kreutter, "Kinetics and Thermochemistry of the Br + NO₂ Association Reaction" (coauthored by **Mike Nicovich** and **Paul Wine**); **Mian Chin**, "A Temperature Dependent Kinetics Study of the Aqueous Phase Reactions of OH Radicals with Thiocyanate, Hydrated Formaldehyde, Formic and Acetic Acids, Formate, and Acetate" (coauthored by Wine); **Mike Nicovich**, "A Kinetics Study of the Reactions of Atomic Bromine with Organic Sulfides" (coauthored by **Ed Daykin**, Kreutter, Chin, and Wine); **Ed Daykin**, "Rate of Reaction of IO Radicals with Dimethylsulfide" (coauthored by Wine); **Paul Wine**, "Kinetics and Mechanism of the Reaction of Hydroxyl Radicals with Dimethyl Sulfoxide Under Atmospheric Conditions" (coauthored by **Tony Hynes**). Wine also chaired a session on Photochemical Dynamics and accepted the responsibility of organizing the XXth Informal Conference on Photochemistry, which will be hosted by Georgia Tech during the spring or summer of 1992.

ENERGY & MATERIALS SCIENCES LAB

Tom Starr presented two papers at the 5th Technical Conference of the American Society for Composites held at Michigan State University in East Lansing (MI) June 11-14: "Thermal Profiles in Forced Flow/Thermal Gradient CVI" (coauthored with D.P. Stinton, ORNL) and "Modeling of Chemical Vapor Infiltration for Ceramic Composite Fabrication" (coauthored with students **G.F. Vinyard** and **A.W. Smith**).

At the Cleveland/Pittsburg Catalysis Conference on April 19, **Rosemarie Szostak** presented an invited paper, "The Mystery of AlPO₄-8: How Can a Large Pore Material Become a Small Pore," coauthored with **Kristin Sørby**, J. Ulan, and R. Gronski.

RADAR & INSTRUMENTATION LAB

Gene Greneker was a panel member at the Transportation Research Board Communications Workshop, held in Los Angeles June 19-21 to develop standards for communications that will be used to support the intelligent vehicle and highway systems of the future. He addressed the topic of vehicle security.

Greneker also attended the 6th Annual Joint Government/Industry Symposium on Security Technology, held in Williamsburg (VA) June 12-14, where he served as co-chairman of the session on Physical Security.

Two popular short courses will be held this month. "Principles and Applications of MMW Radar" will be conducted July 23-27, administered by **Charlie Brown**, **Jim Scheer**, and **Wayne Cassaday**. Lecturers include **Sam Piper**, **Nick Currie**, **Ben Perry**, **Bob Trebits**, **Bill Holm**, **Tracy Wallace**, **Joe Bruder**, **Jim Echard**, and **Jim Scheer**. "Radar Reflectivity Measurement" will be conducted July 30-August 2, administered by **Nick Currie**. Lecturers include **Bob**

Trebits, **Jim Kurtz**, **Jim Scheer**, **Margaret Horst**, **Joe Bruder**, and **Mike Tuley**.

SYSTEMS & TECHNIQUES LAB

Dayton Adams, **Larry Corey**, and **Tony Chimera** attended the Crossbow-S Conference in Arlington (VA) June 26-28. □

Personnel News

ECONOMIC DEVELOPMENT LAB

Lowell Evjen has left the Economic and Marketing Services Branch for a position at ATDC, but he will continue to devote one third of his time to this area.

Paolo Chiappina is a new RE II in the Augusta Regional Office.

HUMAN RESOURCES DEPARTMENT

HRD welcomes **Janie Kite** (formerly of SEL) and **Maggi Harrison** (formerly of RAIL), who transferred on July 1.

RADAR & INSTRUMENTATION LAB

Donald Strausberger, who has an MS from Ohio State, has joined the new Radar & Instrumentation Development Laboratory as an RE II. Co-op **Hans Troemel** has transferred to the lab from ECSL.

Co-op **David Wilburn** has transferred from SEL to the new Radar Systems Applications Laboratory.

SYSTEMS & TECHNIQUES LAB

Keith Rainer and **Lynn Patterson** have terminated their employment. □

Personal Notes

EMSL: Jerry Lett was ordained to the clergy of the Roman Catholic Church as a permanent deacon in the Archdiocese of Atlanta on June 16, and he delivered his first sermon on June 17.

Jamie Burnette was married to Gregory Tarasidis on June 30.

HRD: Congratulations to **Bill Bass** on his marriage to Veronica Haynes.

STL: Congratulations to **Joe** and **Kay Lindsey** on the birth of a son, Griffin Joseph, June 24, to **Stephanie** and **Roger Davis** on the birth of a son, Trenton Scott, July 5, and to **Warren** and **Rhonda Okerberg** on the birth of a son, Philip Warren, July 6.

Jim Cooper placed fifth in the 3,000-meter steeplechase in the TAC National Championships for Track and Field.

On June 30, **Sherri Odom** won first place in the Women's Division of the Possum Trot 10K race which benefitted the Chattahoochee Nature Center. She set a new personal record of 39 minutes and 20 seconds. □