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MEDIA ADVISORY:

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**LISTENING WITH LASERS, EYES AND EARS FOR COMPUTERS,
DANCING RNA, FARM ETHICS, ATTRACTING MINORITY ENGINEERS
HEAD GEORGIA TECH PRESENTATIONS AT AAAS ANNUAL MEETING**

Five faculty members from the Georgia Institute of Technology will be among the presenters February 15-20 at the annual meeting of the American Association for the Advancement of Science. Their presentations are summarized below. Papers and news releases will be available in the AAAS Newsroom during the meeting, or from the Research Communications Office, (404) 894-3444.

LISTENING WITH LIGHT: LASER ACOUSTICS IMPROVE NON-DESTRUCTIVE TESTING; SOUND MEASUREMENT & SUPPRESSION: Laser acoustic techniques that allow scientists to "see" sound and vibration through laser light could lead to new methods for non-destructive testing of aircraft components, noise analysis in mechanical equipment, underwater sound measurement, ocean floor mapping and other potential applications. The optical techniques use lasers to both generate and measure sound, offering researchers a new tool for studying acoustics in gases, liquids and solids. Laser techniques provide important advantages over other methods because they do not alter the phenomenon under study. **Dr. Yves Berthelot, "Current Topics in Physical Acoustics," A.M. Tuesday, February 20 as part of the Physics, Astronomy and Engineering Section.** Release Available.

SYSTEMS THEORY IN FARMING: LAND ETHIC VIEWS EACH FARM'S ROLE IN THE BIG PICTURE: For years, farmers have improved their profits by boosting productivity through new technology, better pesticides and improved fertilizers. The rising cost of those inputs, however, has forced farmers to reconsider that approach. A Georgia Tech scientist argues that farmers must adopt a form of systems theory which tailors crops to the strengths and weaknesses of the farmland, considering how each tract of land affects the ecological system. The presentation will discuss the work of Aldo Leopold, an early theorist in land ethics. **Dr. Bryan Norton, "Beyond the Large Farm," A.M. Saturday, February 17 as part of the Agriculture and Food Section.** Release and paper available.

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DANCE OF THE PROTEINS: SCIENTISTS STUDY CHOREOGRAPHY OF FOLDING THROUGH "FREEZE-FRAME" TECHNIQUE: Researchers are combining hydrogen-exchange labelling and nuclear magnetic resonance imaging to better understand the choreography of protein folding. Using the two techniques to "freeze" the folding steps of the ubiquitin protein, they hope to understand how the amino acid sequence changes from "beads on a string" to a fully-developed three-dimensional structure. Hydrogen exchange labelling swaps hydrogen with deuterium for tracing. **Dr. Martha S. Briggs, "Structure of Early Intermediates in Ubiquitin Folding," A.M. Sunday February 18, part of the Seminar on Protein Folding Mechanisms.** Release and paper available.

NEW STRATEGY FOR COMPUTING: SPECIALIZED PROCESSORS BRING WIDER USE FOR COMPUTER EYES, EARS AND VOICE: How can a frog be so good at catching flies when its brain is no larger than a pea? The answer lies in specialized signal processing. Neural devices near the frog's eyes filter out all but the most critical information before it reaches the brain, reducing the amount of information it must process. Applying that same concept to computing may bring about a fundamental change in the way computers are designed, leading to widespread use of a relatively new type of device known as the digital signal processor. The devices could bring computer eyes, ears and voices to a broad range of consumer applications. **Dr. Richard J. Higgins, "Physics Instrumentation for Science and Technology," A.M. Monday, February 19 as part of the Physics, Astronomy and Engineering Section.** Release available.

FILLING THE PIPELINE: WHAT THE SOUTHEAST HAS DONE TO ATTRACT MINORITY SCIENTISTS AND ENGINEERS: Eighty-five percent of the people who will be entering the U.S. work force over the next ten years will be women and minorities. At the same time, the United States faces a dramatic shortfall in new engineers and scientists, fields traditionally dominated by white males. How can women and minorities be encouraged to follow these career paths? The Southeast Consortium for Minorities in Engineering (SECME) is a partnership of the business community, parents, colleges and secondary schools in eight Southeastern states. It emphasizes training, hands-on activities and curriculum enrichment to help high school science and mathematics teachers lead their students toward science and engineering. **Ms. Carolyn Chesnutt Thorsen, "Precollege Issues in Expanding the Science and Engineering Science Pool," A.M. Sunday, February 18.** Release and paper available.

NOTE: Releases and papers will be available in the AAAS Newsroom in Newberry Room of the New Orleans Hilton during the meeting. They can also be obtained by calling the Research Communications Office at (404) 894-3444.