

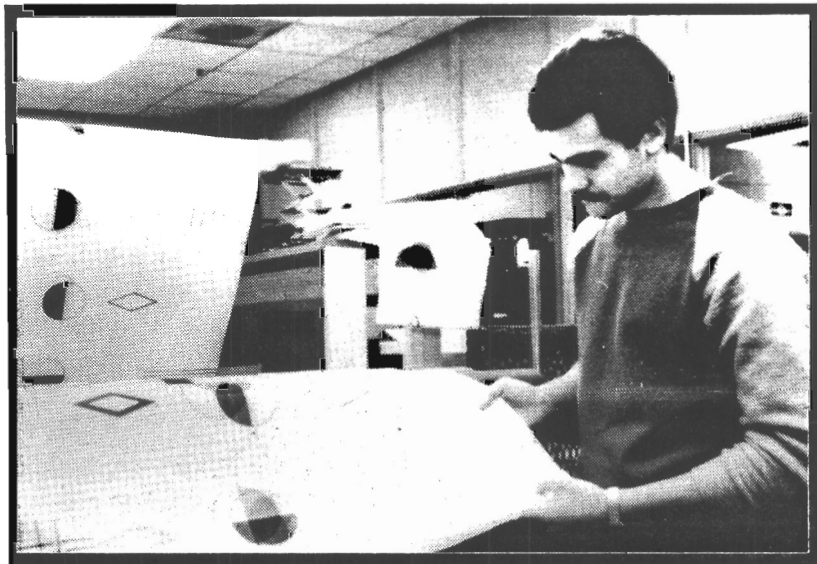
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BUILDING "A MODEL FOR AMERICA": GEORGIA TECH JOINS INDUSTRY & GOVERNMENT TO KEEP GEORGIA'S TEXTILE INDUSTRY STRONG

The Georgia Institute of Technology will be part of a major new cooperative research and education effort aimed at boosting the competitiveness of the U. S. textile industry. First-year funding for the program, known as the National Textile Center - University Research Consortium, was announced March 9 by Center members Georgia Tech, Auburn University, Clemson University and North Carolina State University.

Backers of the Center believe it will serve as "a model for America" to show how industry, government and universities can work together on manufacturing competitiveness issues.



Graduate Student Brian Failor observes fabric on a xerographic printing line under development at Georgia Tech. The process would eliminate water use & cut development time. (B&W/Color Available)

"The textile industry is critical to our economic base in Georgia," said U.S. Senator Wyche Fowler. "I'm delighted that my colleagues on the Senate Appropriations Committee have agreed to lend such strong support to this critical research effort. Government, business and industry must act now to ensure the long-term competitiveness of our textile manufacturers."

Representatives Ed

Jenkins and Lindsay Thomas were also instrumental in gaining approval for the \$8 million U.S. Department of Commerce grant, which will be divided among the four institutions. The project had support from Georgia's entire Congressional delegation.

"One of Georgia Tech's most important jobs is helping Georgia's manufacturing stay competitive," said Georgia

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Tech President Dr. John Patrick Crecine. "Georgia Tech, through the National Textile Center (NTC), is using technological innovation to maintain Georgia and the Southeast as the hub of the textile complex. The NTC is the universities, the federal government and industry working together to save jobs and help a critical industry."

The textile complex -- which includes the fiber, textile, apparel and home furnishings industries -- is the largest manufacturing employer in Georgia, providing jobs to more than 170,000 persons. Industry backers believe the Center will help U.S. industry jump ahead of world competition by developing new technology and quickly putting it to work.

"Capital investments in new facilities and equipment over the past decade have already demonstrated the vital role technology can play in improving the productivity of our industry," said Roy Bowen, president of the Georgia Textile Manufacturers Association (GTMA). "We now need to build a new technology advantage so we can continue to compete on a global basis. A vigorous research base will help ensure our industry's long-term strength."

The Center's research will focus on new high-performance textile materials, faster and more efficient design of new products, innovative manufacturing processes that take advantage of automation, a new generation of high-speed processing technologies, and better integration of all the steps -- design, manufacturing, marketing and distribution -- required to bring new products to market. Center research will also help the industry meet increasingly tough environmental standards and improve energy utilization.

"The NTC will demonstrate how industry, government and universities can work together to solve real-world problems and enhance the connection between basic research and the consumer to improve the national economy," said Dr. Thomas J. Malone, chairman of the Center's Industrial Oversight Committee and president and chief operating officer of Milliken & Company. "The NTC can be a model for America to show how a total industrial complex can improve its competitive position through new technologies and systems."

Dr. Joe Cunning, formerly director of the Research Division of DuPont Fibers, will serve as the first director of the Center. He will receive guidance from a Technical Advisory Committee composed of industry researchers, and an Oversight Committee composed of upper-administration representatives from industry, government and the four universities. Heavy industrial involvement in the planning and review of the work will help ensure that the research addresses real-world problems -- and is quickly put to use through technology transfer.

The Center will support three major joint research thrusts between the four institutions, and Georgia Tech researchers will be involved in all of them. These will include development of improved textile composite fabrics used in the automotive, aerospace and other industries; new fabric barrier systems; and new electrically-based production technologies. Center research will also help the industry meet increasingly tough environmental standards and deal with energy-related issues.

Specific individual projects at Georgia Tech will focus on carpet waste utilization and reduction, pollution reduction, new printing technologies -- such as xerographic printing -- new methods for producing yarns and improved process monitoring and controls, said Dr. Fred L. Cook, director of the School of Textile & Fiber Engineering.

Through sponsorship of graduate fellowships, the Center will also foster the training of young scientists to ensure an influx of researchers into the textile industry, maintaining the viability of future research capabilities.

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Research Projects at Georgia Tech Sponsored by National Textile Center

I. Cooperative Research Projects:

-- **Development of New Electrotechnologies:** Alternative manufacturing processes can improve the competitive position of the U.S. textile and apparel industry by providing quick response to market demands, energy savings, better quality and unique products. Researchers at Georgia Tech, Auburn University and North Carolina State University will study how to use radio frequency (RF) energy, infrared radiation, and ultrasound to improve processing. These electrically-based technologies will principally be used to speed the drying of products. Preliminary work has been done at all three institutions.

-- **Gas, Liquid, Aerosol Fabric Barrier Systems:** Operation Desert Storm last winter accentuated the need for improving protective garments worn by soldiers to guard against chemical and biological warfare attacks. Researchers from Georgia Tech, Auburn University and North Carolina State University will study protection issues, develop new protective materials and determine how to process those materials into garments.

-- **Textile Structural Composites:** Textile fabrics are the basis for the strong and light new composite materials being used in aircraft, automobiles and other applications. These fabrics offer strong new potential markets for the industry as their demand continues to grow. Researchers from Georgia Tech, Clemson University and North Carolina State University will develop improved composite fabrics.

II. Projects Unique to Georgia Tech:

-- **Recycling of Carpet Waste:** The carpet industry produces significant amounts of waste, approximately 44 million pounds a year from manufacturing processes in the Dalton area alone. In addition, the replacement of old carpet generates about 1 billion pounds of waste each year. The process waste and used carpet -- both of which contain valuable materials -- are now buried in landfills. Georgia Tech researchers will explore ways of reducing and re-using the waste -- including a possible use of recycled materials in fiber-reinforced concrete. One difficult problem is separating the carpet fibers from the backing material.

-- **Coloration Systems for Quick Response Manufacturing:** The ability to quickly bring new products to market is an important competitive advantage. Yet many textile processes -- such as dyeing and printing -- require long lead times and are not adaptable to the short production runs necessary for quick response manufacturing. Georgia Tech researchers will develop new computer-controlled coloration technologies, including the adaptation of the ink-jet and xerography processes now used for paper printing. Researchers will continue development of a production line for printing three-color patterns onto fabric using xerography -- the same technology that is at the heart of office copiers. Dyeing of assembled garments will also be explored as a means of reducing response times.

-- **Distributed Process Monitoring/Control Systems:** The increased complexity and sophistication of textile manufacturing processes requires new automated techniques to assure maximum performance. Georgia Tech researchers will apply cutting-edge control methods -- using expert systems and "fuzzy logic" techniques -- to improve yarn manufacturing and related processes. Fuzzy logic techniques are valuable in controlling processes which are subject to uncertainty.

-- **Reduction of Pollutants in Processing Wastewater:** The textile industry faces growing concerns about its wastewater discharges, particularly those of dyes -- which are difficult to treat. Georgia Tech researchers will study two approaches to the problem: (1) improved methods for the re-use of dyebaths to reduce dye effluent, and (2) new processes for treating wastewater to remove dyes and other process chemicals prior to discharge.

-- **Flexible, Short Run Yarn and Fabric Formation:** U.S. textile manufacturing operations are designed to efficiently produce large quantities of yarns and fabrics. But the "Just in Time" and "Quick Response" techniques being adopted as competitive measures by the industry require an ability to produce short runs that tend to be inefficient. Georgia Tech researchers will explore methods for accommodating such short runs with existing fabrication equipment.

National Textile Center University Research Consortium

DATE: 3-9-92



UNIVERSITIES, INDUSTRY & GOVERNMENT UNITE IN "A MODEL FOR AMERICA" TO ENHANCE U.S. TEXTILE INDUSTRY COMPETITIVENESS

A consortium of four Southeastern universities has been awarded an \$8 million grant from the U.S. Department of Commerce to launch the National Textile Center University Research Consortium (NTC), a cooperative research and education program which has been called "a model for America."

The Center's goal is to enhance the competitiveness of the U.S. textile industry through development and implementation of leading-edge technologies and rapid response manufacturing and distribution systems. The Center will focus on the fiber, textile, apparel and home furnishings industries, which together provide more than 2 million jobs in the United States, collectively making them the nation's single largest manufacturing employer.

The participating academic institutions — Auburn University, Clemson University, the Georgia Institute of Technology and North Carolina State University — will bring together their engineering, science, management and educational strengths for interactive research guided and supported by executives and researchers representing the textile industry.

"The NTC will demonstrate how industry, government and universities can work together to solve real-world problems and enhance the connection between basic research and the consumer to improve the national economy," said Dr. Thomas J. Malone, chairman of the Center's Industrial Oversight Committee and president and chief operating officer (COO) of Milliken & Company.

"The cooperation in the NTC can be a model for America to show how a total industry can improve its competitive position through new technologies and systems that increase quality, flexibility and responsiveness to the market needs while reducing waste and effluent," he added. "The American consumer will be the beneficiary of these exciting efforts."

Substantial investments by the textile complex in automation, new manufacturing technologies and "quick response" systems have resulted in dramatic improvements in quality and customer responsiveness over the past decade. But over the past five years, the growth of low-cost imports, financial restructuring of many companies and other factors have reduced the industry's ability to conduct research needed to continue these advances. In the meantime, large and well-organized government-sponsored textile research efforts have developed in both Europe and the Pacific Rim.

Malone called the Center grant "an important step" in efforts to boost industrial competitiveness at a time when U.S. manufacturing capability is "under severe attack."

Dr. Joe Cuning, former director of the Research Division of DuPont Fibers, will serve as the first director of the NTC.

"I am pleased to join this essential effort to improve the competitiveness of the American textile industry," he said. "The NTC consortium will provide a significant improvement in the technological underpinning of the industry. It will also serve to create closer relationships between university researchers and industry."

MORE!



Georgia
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National Textile Center University Research Consortium

page 2

Heavy industrial involvement in the planning and review of the Center work will help ensure that the research addresses real problems and is quickly put to use through technology transfer, Cuning added.

The Center's research will focus on new, high-performance textile materials, faster and more efficient design of new products, innovative manufacturing processes that take advantage of automation, a new generation of high-speed processing technologies, and better integration of all the steps -- design, manufacturing, marketing and distribution -- required to bring new products to market. Center research will also help the industry meet increasingly tough environmental standards and improve energy utilization.

The NTC effort is unique because of the high level of cooperation among the four universities. Through the sponsorship of graduate fellowships, the Center will also foster the training of young scientists to ensure the availability of future research capabilities.

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NATIONAL TEXTILE CENTER RESEARCH PROJECTS

Novel Textile Structural Composites: Using three-dimensional braiding and weaving techniques, researchers are working to create very strong, stiff, lightweight preforms for reinforcing composite materials for specialized uses. For example, the materials might be used for jet engine nozzles or parts for spacecraft. This project is a cooperative one among Clemson University, the Georgia Institute of Technology and North Carolina State University.

Developing New Protective Clothing: Researchers from North Carolina State University, Georgia Institute of Technology and Auburn University are working to develop new materials and designs for clothing to protect the wearer from a variety of chemical agents -- from gases to liquids to aerosols. Protective clothing currently in use does not allow the skin to breathe and cannot be worn comfortably for long periods of time. The researchers are looking at new absorbent fibers and designs that minimize or protect seams. The project addresses a need of the military, chemical industries and agribusiness.

Applying New Electrotechnologies: Researchers at Auburn University, Georgia Institute of Technology and North Carolina State University are looking at ways to apply novel electrotechnologies, such as infrared, microwave or ultrasonic radiation, in various textile processes. The goal is to shorten processing time, reduce water usage and -- if possible -- conserve power or balance electrical load.

In addition to the three joint projects mentioned above, each participating institution is pursuing a number of specialized projects. These include the following examples:

- Synthesis of Environmentally Safer Dyes
- Addressing Appearance Defects in Fabrics
- Recycling of Carpet Waste
- Coloration Systems for Quick Response Manufacturing
- Distributed Process Monitoring/Control Systems
- Yarn Performance During Weaving
- Production and Properties of Fine and Micro Denier Fibers
- Processes for In-Plant Process Organic Volatiles Analysis
- Computer-Integrated Manufacturing
- Projection of U.S. Apparel Demand
- Reduction of Pollutants in Processing Wastewater
- Flexible, Short Run Yarn and Fabric Formation

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NATIONAL TEXTILE CENTER DIRECTOR

Dr. Joe D. Cuning, Formerly Director of Research Division, DuPont Fibers 1982-1992