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Materials

Research in the design, development, manufacture and measurement of natural and synthetic polymers and fibers, including polymer mixtures and additives.

Chain Orientation in Semi-Solid Polymers

By decreasing chain entanglements during spinning, we hope to optimize polymer stretching and increase chain orientation and fiber tenacity. (Broughton) [M98-A04]

Photoadaptive Fibers

We are developing photoadaptive fibers that reversibly change their optical, heat reflectivity and electrical properties when exposed to high intensity visible light. (Slaten) [M98-A10]

Intelligent Fibers and Fabrics

Stimuli-sensitive materials change their properties upon tiny environmental changes. (Buschle-Diller) [M98-A16]

Chameleon Fibers

We are designing fibers that can quickly change their color, hue, depth of shade or optical transparency by application of an electrical or magnetic field. (Gregory) [M98-C01]

Biomimetic Manufacturing of Fibers

We are exploiting recombinant DNA and plant transgenic technologies to create and produce novel protein polymers in significant quantities for fiber spinning. (Ellison) [M98-C05]

Nanofibers

We are developing electrospinning as a way to make novel synthetic fibers with unusually small diameters ranging from 50 to 500 nm. (Rutledge) [M98-D01]

High Stress Elastic Materials

We are developing a model for linear textile structures, such as braided ropes, to be used in applications that require high strain to failure, high toughness and elastic conditions. (Chen) [M98-D03]

Draw Induced Morphology and Fiber Architecture

By studying how incremental draw effects fiber physical properties, we are identifying optimum processing conditions to maximize fiber properties. (Jacob) [M-98-G05]

Nanomachines: Molecular Spinnerets for Polymeric Fibers

We are developing nanomaterial spinning machines to produce custom designed fibers. (Jacob) [M-98-G08]

Biotechnological Production of Polyesters

We are developing enzyme technology for cell-free synthesis of polyesters as a prototype for the application of biocatalysis to production of new materials in the future. (May) [M99-G11]

Intelligent Textiles with Environmentally Responsive Fibers

We are designing "smart" textiles that sense and actively self-regulate their immediate environmental surroundings through the electro-active response of fibers. (Foulger) [M00-C07]

Bio-Active Fabrics

We are developing fabrics that contain genetically engineered cells that will enable them to generate and replenish chemical coatings and chemically active components. (Fowler) [M00-D03]

Nanocomposite Fibers

We are developing biphasic fibers intimately blended with nanosized rigid particles, such as nylon/clay or carbon nanotubes, to produce vastly enhanced fiber properties. (Kim) [M00-D08]

Optical Fibers, Fiber Amplifiers and Lasers

We are developing fluoropolymer fibers that are more flexible, thus easier to install, than glass fibers now used for optical fiber-based communication networks. (Ballato) [M01-C01]

Surface Modification of Fibers with Nanolayers

We are developing ways to create "smart" multifunctional responsive/adaptive fibers by modifying their surface with hybrid polymer nanolayers. (Luzinov) [M01-C03]

Dynamic Chameleon Fiber Systems

We are developing fibers whose optical characteristics (e.g. color, absorbency, reflection) can be controlled by an internal or external electrical field. (Gregory) [M01-C07]

Ultrafine Fibers from Electrostatic Spinning

By refining our electrostatic spinning techniques, we seek a way to produce $<0.1\mu$ diameter fibers for such uses as filtration, light weight composites and "smart" fabrics. (Rutledge) [M01-D22]

High Modulus, High Tenacity Melt Spun Fibers

By understanding the orientation distribution function of polymer chain segments, we hope to develop structure/property relationships leading to higher strength fibers. (Michielsen) [M01-G01]

Fiber Structure Evolution During Spinning

We are investigating strain induced morphology development in fibers to understand the evolution of structure during the fiber formation process. (Jacob) [M01-G04]

Lewis Acid-Base Complexation of Polyamides

By suppressing interchain amide group hydrogen bonding during spinning and drawing, we hope to develop ways to nylon fibers with higher strength and modulus. (Tonelli) [M01-S03]

Fabrication

Research in the design, development, manufacture and measurement of fibrous structures, including yarns, textiles, garments, nonwovens, carpets, coated fabrics, papers, preforms, etc.

Fiber Hydroentanglement Using Pulsed Elliptical Jets

Report Not Submitted

Pulsing an impinging jet flow through elliptical holes increases fiber splitting and bonding and improves filtration efficiency in nonwovens. (Ellison) [F98-C04]

Ultra-thick Cross Section Composites

We are developing models to optimize fiber and resin parameters important to the manufacture of thick cross-section composites. (Kim) [F98-D04]

Fiber-Particle-Airflow Interaction

We are developing the knowledge base that can lead to more efficient machines, shortened production lines and novel processes to convert fiber batt directly to yarns. (Wang) [F98-G15]

Modeling of Ductile Braided Composites

Our models of hybrid braided composites can predict processing conditions and initial failure well, but post-yield ductile response requires additional modeling. (Pastore) [F98-P01]

Automated 3D Fabric Part Handling

We are developing efficient and optimal fabric part handling technologies for automated processes. (Eischen) [F98-S04]

Fiber-on-Fiber Friction

We are investigating the friction behavior of fibers and energy dissipation under dynamic loading conditions. (Qiu) [F98-S09]

Microelectromechanical Fabric Formation Systems

We are developing fundamentally new approaches for processing fibers into textile structures using microelectromechanical systems technology. (Hodge) [F98-S12]

Filling Yarn Insertion in Air Jet Weaving

We are developing a model to better understand fiber and yarn motion dynamics in air-jet weaving. (Adanur) [F99-A10]

Multi-component Cotton Blending Variability

To develop reliable measures of multi-component blending, we are analyzing the transient nature of variability and variability conservation laws. (El Mogahzy) [F99-A13]

Fiber Motion in High-Speed Air Flows

We are developing models to elucidate the behavior of fibers in high speed air streams. (Oxenham) [F99-S06]

Substrate-Coating Interaction in Coated Fabrics

We are developing a model to predict interactions between a deforming fiber and its coating to optimize structural configurations of coated fabrics under complex loading. (Chen) [F00-D06]

Architectural Fabric Structures

We seek to understand and optimize the mechanical behavior of nonlinear anisotropic fabrics under tension to create new architectural fabric structures. (Messinger) [F00-P01]

Engineering Non-Linear Elastic Blended Fabrics

We are modeling and designing blended fabrics for the nonlinear elasticity requirements for such uses as arterial grafts, performance cycling apparel and erosion control fabrics. (Dunn) [F00-P05]

Magnetic Ring-Spinning for Increased Speeds

By replacing the traveler in ring spinning with a disc that rotates in a magnetic field, we hope to maintain the high quality of ring spun yarn, but at much higher speeds. (Abdel-Hady) [F01-A02]

Nonlinear Dynamics of High Speed Transport in Non-Uniform Yarns

We are developing nonlinear models that predict the tension and balloon shape of non-uniform yarns (e.g. staple yarns) undergoing high speed translation and rotation. (Goswami) [F01-C04]

One Step Carding-Spinning

We developed a new two-step process to convert raw staple fibers to yarns, and are now enhancing the fundamental understanding of the final carding-spinning step. (Wang) [F01-G06]

Micromachines in Fabric Formation

We are developing new ways to process fibers into textile structures using micro electromechanical systems and small robotic devices. (Seyam) [F01-S14]

Chemical Processes

Research in dyeing, finishing and waste reduction in textile processes.

Antimicrobial Textiles

We are developing textiles which can release reactive chemical species, especially those with extensive antimicrobial activity. (Broughton) [C98-A17]

Delivering Additives Embedded in Textile Fibers and Polymers

We are embedding textile additives into polymer and fibers during spinning. (Tonelli) [C98-S01]

Simultaneous Dyeing and Finishing

We can impart water-repellency to fabrics by incorporating hydrophobic groups into the backbone of commonly used reactive and disperse dyes. (Freeman) [C98-S04]

Closed Loop Desizing, Scouring and Bleaching

Using suitable enzyme systems we developed a closed-loop process that replaces conventional textile preparatory processes to desize, scour and bleach cotton. (Buschle-Diller) [C99-A07]

Chemistry and Transport in Super and Sub-Critical Fluids

We are studying the solubility and transport of dyes and chemicals in super- and sub-critical fluids and their interface with textile substrates. (Drews) [C99-C03]

Improving Textile Ink Jet Printing

We are developing fundamental knowledge of the flow, droplet formation, and droplet/substrate interaction in two-phase ink jet printing. (Carr) [C99-G08]

Dye Diffusion in and Surface Treatment of Fibers

To minimize dye streaks, we are studying dye diffusion in and surface treatment of fibers using laser scanning confocal microscopy to measure the 3-D distribution of dye in fiber. (Tonelli) [C99-S04]

Non-Aqueous Fabric Finishing

We are investigating using high energy plasma to create a continuous non-aqueous fabric treatment system, encompassing desizing, scouring, dyeing and especially finishing. (McCord) [C99-S09]

Abrasion Resistance of Durable Press Cotton

We are developing a fundamental understanding for the loss of abrasion resistance in durable press cotton fabric. (Lickfield) [C00-C01]

Quantum Dots as Dyes and Optical Brighteners for Fibers

We are varying the size of semiconductor nanocrystals to color fibers by diffraction over the entire visible range of the electromagnetic spectrum. (Srinivasarao) [C00-G03]

Rapid Design of Novel Chemicals for Textiles

We are integrating combinatorial organic synthesis, high throughput screening and chemoinformatics to develop novel chemicals for the textile industry. (Bhat) [C00-P01]

Using Dense Gas Fluids to Improve Chemical Processing

We are using dense gas fluids, such as CO₂, to improve selectivity, reaction rate and control in durable finishing, morphology modification and coloration processes for fibers. (Drews) [C01-C01]

Dyeable Polypropylene via Nanotechnology

We are infusing nanoparticles, such as nanoclays modified with quaternary ammonium salt, into polypropylene fibers to create dyesites for lower cost dyeings in apparel fibers. (Fan) [C01-D20]

Thermally Stable Textile Processing Aids

We are developing a fundamental understanding of the thermal degradation mechanisms of textile processing aids, such as finishes and antistatic and antibacterial additives. (Grant) [C01-S08]

Integrated Enterprise Systems

Research in systems to enable rapid response, including information technology, computer modeling, management processes, market research, expert systems, customer interactive design and demand-activated, closed-loop production systems.

Building Global Brand Image Strategies

We are examining the potential of the Internet as a strategic tool to enhance global brand images and sales for U.S. apparel products and brands. (Forsythe) [I98-A06]

An Interactive, Web-Based Baby Boomer Panel

By discovering how baby boomers are reacting to the marketplace, we can explore web-based consumer research. (Ulrich) [I98-A07]

Fitting Preferences of Females

We seek to understand the nuances of fit from the consumer's perspective so we can translate consumer fit preference data into an expert system. (Connell) [I98-A08]

Simulating Consumer's Apparel Purchases

We are using agent-based simulation to model the formation of a consumer's intent to purchase apparel. (Brannon) [I98-A09]

Designing Dyes, Chemical Auxiliaries, Polymers, and Fibers

We are using genetic algorithms, neural networks and fuzzy logic with molecular orbital methods to design a variety of dyes, chemical auxiliaries, polymers and fibers. (Sztandera) [I98-P01]

Fabric Drape Model

We are developing a physically based model of fabric drape that can be used in apparel design including multiple layers of fabrics, two-ply seams and fabrics with stitches. (Govindaraj) [I98-P02]

Integrated Supply Chain Analysis

We are attacking critical softgoods supply chain integration and decision support problems using fuzzy mathematics and neural network technologies. (Berkstresser) [I98-S01]

Predicting Textile and Apparel Demand

We are designing consumer demand equations to predict consumer purchases in textiles and apparel. (Suh) [I98-S06]

Apparel Production Systems to Support Quick Response

We are developing software to understand the role of manufacturing configuration and production planning and control in support of quick response replenishment to retail. (King) [I98-S12]

New Textile Technologies: Will They Flourish or Perish?

To improve purchasing decisions, we are developing a model to predict how new textile technologies will survive, flourish, diminish and perish versus competitive technologies. (Thomas) [I99-A02]

When is Domestic Apparel Manufacturing Competitive?

A retailer or manufacturer can now analyze the accuracy of their sales forecast, and determine how much Quick Response Manufacturing is cost-effective. (Warburton) [I99-D16]

Educating the Educators

We are developing instructional strategies that expand the abilities of textile graduates in the workplace. (Pastore) [I99-P01]

Information Engineering

We are developing ways to fundamentally enhance the decision effectiveness in textile manufacturing, using the data-to-decision model as a basis. (Hodge) [I99-S10]

Fabric Design and Analysis System in 3D Virtual Reality

We are developing software to recognize the image and structure of a spun yarn to produce a database that would yield a model to predict fabric structure and performance. (Adanur) [I00-A06]

Design Preferences of Lead Users

We wish to create a new methodology to track emerging apparel design trends by merging direct input from lead users with data from textile industry personnel. (Seed Project) (Solomon) [I00-A16]

Haptic Simulation of Fabric Hand

We are developing a virtual reality system that allows users to achieve a virtual sense of touch so they can evaluate a fabric's hand without actually touching it. (Govindaraj) [I00-P08]

Automated Garment Development from Body Scan Data

We are creating a conceptual model to automatically integrate body scanning data into commercial CAD/CAM software to facilitate garment design, derivation and sizing. (Carrere) [I00-S15]

Web-Based System to Track How Consumers Express Lifestyles

We are researching how consumer constellation theory allows consumers to jointly express desired lifestyles across product categories, such as apparel and home furnishings. (Solomon) [I01-A21]

Redefining the Apparel Consumer

Using psychometric techniques (e.g. personality, interests, values), we are developing a stable, precise and relevant measure of consumer types independent of demographics. (Brannon) [I01-A25]

Virtual Fit Models Via Body Scan Analysis

By fundamentally understanding body scan data, we seek to develop virtual fit models and slopers for mass produced female apparel based on body shape, posture and weight. (Connell) [I01-A27]

How Common Consumer Emotions Affect Global Retailing

We are developing a model which will incorporate the emotional responses (e.g. excitement, satisfaction) that drive global consumers' behavior when shopping for textiles at retail. (Kim) [I01-A31]

Design-Oriented Fabric Comfort Model

We are developing a way to measure fabric comfort using structural, fuzzy-logic and psychological modeling. (El Mogahzy) [I01-A32]

Using Body Scan Data to Improve Garment Fit

By comparing clothed and unclothed body scan data, we are developing ways to design apparel sizing systems to improve garment fit. (Ashdown) [I01-B01]

On-Line Weight and Shrinkage Control of Cotton Knits

To improve dimensional control during knitting, we are customizing image technology to design a system that measures the fractional space covered by the knitted loop. (Abou-iiana) [I01-P07]

Fuzzy Forecasting Model for Apparel Sales

We are developing models to forecast apparel sales based on fuzzy logic (e.g. neural networks, genetic algorithms), then later introducing endogenous and exogenous variables. (Frank) [I01-P10]

Optimal Investment Strategies for Enhanced Productivity

To increase our textile industry's market share, we are defining investment strategies that maximize manufacturing productivity while satisfying dynamic consumer needs. (Christoffersen) [I01-P13]

B-to-B Collaboration in a Softgoods E-Supply Chain

Using fuzzy math to capture vague and uncertain factors, we are developing models and prototype tools to establish B2B collaboration in the global softgoods E-supply chain. (King) [I01-S01]

Modeling Thermal Protection of Apparel

For intense heat environments, such as fire, we are developing an analytical model that predicts thermal protection of and heat transfer through industrial and military apparel. (Barker) [I01-S02]

Constraint Based Coordination of New Product Development

(Winchester) [I01-S09]

Report Not Submitted

Emerging Apparel Supply Chain Configurations

Our research will enable the design of manufacturing systems that support the U.S. apparel supply chain, both from a financial and a service viewpoint. (King) [I01-S10]

3-D Imaging of Fabrics from On-Line Yarn Data

From on-line yarn measurements alone, we are developing 3-D prediction models for woven and knit quality attributes, such as appearance uniformity and physical properties. (Suh) [I01-S12]

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NTC Directory:

Bios/Photos of Principal Investigators & NTC Staff..... ***Bio file***

Biographies for everyone who has ever been an NTC principal investigator include title, institution, academic degrees, experience, research interests, NTC project numbers, E-mail address, telephone number and personal web site address.

Auburn Management

Textiles Having the Ability to Deliver Reactive Chemical Systems

(Broughton with Georgia Tech, UCal-Davis) C98-A17

Building Global Textile & Apparel Brand Image Strategies: A Cross

National Model (Forsythe with Sandia) I98-A06

Interactive Cohort Analysis: An On-Line Panel of "Baby Boom" Consumers

Anticipating Their Retirement Years (Ulrich) I98-A07

Understanding Fitting Preferences of Female Customers:

Development an Expert System to Enhance Accurate Sizing Selection

(Connell with UNC-Greensboro, Nottingham Trent, [TC]²) I98-A08

Agent-Based Simulation of the Consumer's Apparel Purchase Decision

(Brannon) I98-A09

Development of Chain Orientation During Deformation of Semi-Solid

Polymers (Broughton with NC State) M98-A04

Photoadaptive Fibers For Textile Materials (Slaten) M98-A10

Intelligent, Stimuli-Sensitive Fibers and Fabrics (Buschle-Diller with NC State) M98-A16

Environmentally Benign Closed-Loop Preparatory Process

(Buschle-Diller with Georgia Tech, NC State, UCal-Davis) C99-A07

Characterization of Air-Yarn Interface in Air-Jet Weaving (Adanur) F99-A10

Developing Fundamental Measures of Cotton Multi-Component Blending

Performance (El Mogahzy with ITT) F99-A13

Bionomic Analysis of Predatory Exclusion of Technologies

(Thomas with VaTech, ITT) I99-A02

Fabric Design and Analysis System in 3D Virtual Reality

(Adanur with Georgia Tech) I00-A06

Methodology to Assess Design Preferences of Lead Users [Seed Project]

(Solomon with Berry College) I00-A16

Magnetic Ring-Spinning - Revolutionizing the Tradition (Abdel-Hady) F01-A02

On-Line Measurement, Analysis and Feedback System

(Solomon with Berry College) I01-A21

Validity and Reliability in Measuring the Dimensions of Apparel Behavior

(Brannon) I01-A25

Body Scan Analysis for Virtual Fit Models

(Connell with Nottingham Trent, [TC]², Cornell) I01-A27

The Role of Emotion in Success of Global Retailing

(Kim with Dong Hwa, Oklahoma St) I01-A31

Developing a Design-Oriented Fabric Comfort Model

(El Mogahzy with Clemson, Georgia Tech, PhilaU) I01-A32

Clemson Management

Improved Fiber Hydroentanglement Using Pulsed Elliptical Jets (Ellison) - No Report Submitted (see 2000 Annual Report)	F98-C04
Chameleon Fibers: Dynamic Color Change From Tunable Molecular and Oligomeric Devices (Gregory with Georgia Tech, Furman)	M98-C01
Biomimetic Manufacturing of Fibers (Ellison)	M98-C05
Chemistry and Transport in Super and Sub-Critical Fluids (Drews with NC State).....	C99-C03
Abrasion Resistance of Durable Press Cotton (Lickfield with Georgia)	C00-C01
Intelligent Textiles based on Environmentally Responsive Fibers (Foulger)	M00-C07
Novel Textile Chemistry for Dense Gas Fluids (Drews with NC State)	C01-C01
Nonlinear Dynamics of High Speed Transport for Staple Yarns (Goswami with U. of Sydney).....	F01-C04
Novel Polymeric Optical Fibers, Fiber Amplifiers, and Lasers (Ballato) ...	M01-C01
Hybrid Polymer Nanolayers for Surface Modification of Fibers (Luzinov with Iowa State).....	M01-C03
Dynamic Color Change Chameleon Fiber Systems (Gregory with Furman, Georgia Tech)	M01-C07

Cornell Management

[The Annual Report is optional for Cornell in 2001]

"Green" Composites from Cellulose Fabrics & Soy Protein Resin (Netravali) - No Report Submitted	F01-B01
Use of Body Scan Data to Design Sizing Systems Based on Target Markets (Ashdown)	I01-B01
Biodegradable Hydrogel-Textile Hybrid for Tissue Engineering (Chu) - No Report Submitted	M01-B01
Improving the Understanding and Acceptance of Personal Protective Equipment (Obendorf)- No Report Submitted	M01-B02

University of Massachusetts Dartmouth Management

Ultra-thick Cross Section Fiber Reinforced Composites (Kim)	F98-D04
A Fundamental Investigation of the Formation and Properties of Electrospun Fibers (Rutledge, M.I.T., with UMassD)	M98-D01
High Stress Elastic Materials (Chen, UMass Lowell, with UMassD)	M98-D03
When is Domestic Apparel Manufacturing Competitive? (Warburton with NC State, URI)	I99-D16
Substrate-Coating Interaction in Coated Fabrics (Chen, UMass Lowell, with UMassD, Georgia Tech, UCal-Davis)	F00-D06
Development of Bio-Active Fabrics (Fowler with Harvard)	M00-D03
Nanocomposite Fibers (Kim with Arizona)	M00-D08
Dyeable Polypropylene via Nanotechnology (Fan with UNL)	C01-D20
Electrostatic Spinning and Properties of Ultrafine Fibers (Rutledge, M.I.T. , with UMassD)	M01-D22

Georgia Tech Management

Analysis of Fiber-Particle-Airflow Interaction and Its Application to the Development of a Novel Card-Spinning System (Wang with Clemson)	F98-G15
Draw Induced Morphology Development and Fiber Architecture (Jacob with Ohio State, TRI)	M98-G05
Molecular Spinnerets for Polymeric Fibers (Jacob with Oak Ridge)	M98-G08
Textile Ink Jet Performance and Print Quality Fundamentals (Carr with InstPaperSci&Tech)	C99-G08
New Approaches for Biotechnical Production of Polyesters (May with Auburn)	M99-G11
Quantum Dots As Dyes And As Optical Brighteners For Fibers (Srinivasarao)	C00-G03
Analysis and Enhancement of Carding and Spinning (Wang with Clemson) .	F01-G06
Fundamentals of High Modulus, High Tenacity Melt Spun Fibers (Michielsen)	M01-G01
In-Situ Synchrotron Study during Fiber Processing (Jacob with SUNY-StoneyBrook, UMass Amherst, Ohio State, Clemson)	M01-G04

Philadelphia University Management

Braided Hybrid Composites for Bridge Repair (Pastore with Drexel)

No Report Submitted (see 2000 Annual Report) F98-P01

Use of Artificial Intelligence in Designing Dyes, Chemical Auxiliaries, Polymers and Textile Fibers (Sztandera)

I98-P01

Physically Based Fabric Drape Models as Tools for Computer-Aided Design of Apparel and Other Textile Structures (Govindaraj)

I98-P02

Educating the Educators (Pastore)

I99-P01

COS and HTS Design of High-Performance, Nontoxic Chemicals for Textiles (Bhat)

C00-P01

Architectural Fabric Structures: Exploration, Modelling and Implementation (Messinger)

F00-P01

Engineered Non-Linear Elastic Blended Fabrics (Pastore with Auburn)

F00-P05

Haptic Simulation of Fabric Hand (Govindaraj with U. of PA)

I00-P08

On Line Weight and Shrinkage Control of Cotton Knits

(Abou-iiiana with Auburn) I01-P07

A Fuzzy Forecasting Model for Women's Casual Sales

(Frank with California State Polytechnic Univ)..... I01-P10

Optimal Investment Strategies for Enhanced Productivity

(Christoffersen) I01-P13

North Carolina State Management

Delivering Additives Embedded in Textile Fibers and Polymers

(Tonelli with Clemson)	C98-S01
Simultaneous Dyeing and Finishing (Freeman)	C98-S04
Automated Three Dimensional Fabric Part Handling (Eischen with Clemson) .	F98-S04
A Novel Approach for Measurement of Fiber-on-Fiber Friction	
(Qiu with Cotton Inc, Georgia Tech)	F98-S09
Micromachine Based Fabric Formation Systems (Hodge)	F98-S12
Integrated Supply Chain Analysis and Decision Support (Berkstresser)	I98-S01
Demand Systems Approach to Prediction of Textile and Apparel	
Demands Under Dynamic Social Trends (Suh)	I98-S06
Analysis of Apparel Production Systems to Support	
Quick Response Replenishment (King with [TC] ²)	I98-S12
Fundamental Dye Diffusion and Surface Treatment of Fiber	
(Tonelli with Clemson, Georgia Tech, LSU)	C99-S04
A Novel Non-Aqueous Fabric Finishing Process (McCord)	C99-S09
Fiber Motion and Yarn Forming in High Speed Air Flows (Oxenham with Loughborough Univ., South India Textile Research Association and China Textile Univ.)	F99-S06
Information Engineering: Textile Industry's Value-Adding Key To	
Effective Decision-Making (Hodge with ITT)	I99-S10
Automated Garment Development from Body Scan Data (Carrere)	I00-S15
Improving the Thermal Stability of Textile Processing Aids (Grant)	C01-S08
Applications of Micromachines in Fabric Formation (Seyam)	F01-S14
Business-to-Business Collaboration in a Softgoods E-Supply Chain	
(King)	I01-S01
Modeling of Thermal Protection Outfits for Fire Exposures (Barker)	I01-S02
Combining Theory of Constraints and Speech Act Theory for Constraint	
Based Coordination of New Product Development	
(Winchester) - No Report Submitted	I01-S09
Emerging Apparel Supply Chain Configurations (King)	I01-S10
3-D Electronic Imaging of Fabric Qualities by On-Line Yarn Data	
(Suh with Shenkar College-Israel)	I01-S12
Lewis Acid-Base Complexation of Polyamides (Tonelli with TRI)	M01-S03

Discontinued Projects

The following NTC programs were discontinued because they successfully completed their maximum three-year life span or because other research was of higher priority. For their last report, see the NTC Web site at <http://www.ntcresearch.org>, the June 2001 *NTC*

Research Briefs or the November 2000 *NTC Annual Report*. You may also contact the principal investigators whose phone numbers and E-mail addresses are listed therein or in the NTC Directory. However, several new programs grew out of these projects. See the notes following the listings below, if applicable.

Modeling Blood Flow Through Vascular Grafts (Dunn) [M98-P2]

Development and Experimental Validation of Nonlinear Phenomena for High-Speed Yarn Transport Systems

(Goswami with NC State, Univ. of Sydney, Australia) [F97-C05] - see F01-C04

Scientific Study of Flock Materials and the Flocking Process (Kim) [F97-D01]

Sensory (Kansei) Engineering of Aesthetics in Textile Fabrics

(Barker: Seed Project) [F99-S02]

Investigation of Flexible Crosslinking Systems for the Retention of Mechanical Strength and Abrasion Resistance in Durable Press Cotton Fabrics (Lickfield with Georgia) [C97-C03] - see C00-C01

Fundamentals of Moisture Transport in Textiles: Magnetic Resonance Imaging Studies (Beckham with UMassD) [C97-G31]

Finish Film Stability and Its Relevance to Slinging of Spin Finish on a Spinline (Kamath) [C98-P02]

Optimizing Dyeing Process Control Through Improved Modeling (Smith) [C99-S02]

Consumer Preferences for Apparel and Textile Products as a Function of Lifestyle Imagery (Solomon with Berry College) [I97-A11] - see I00-A16 & I01-A21

Real-Time Yarn Characterization and Data Compression Using Wavelets (Jasper) [I97-S01] - see I01-S12

A Programmatic Solution to Compress the Supply Chain in Fabric Weaving (Duenas) [I98-P03]

Abbreviations

The following abbreviations are not always defined in articles

Auburn (A): University of Auburn, Auburn AL 36849	MAE: Mechanical and Aerospace Engineering	TFPS: Textile, Fiber & Polymer Science
Chem Eng: Chemical Engineering	ME: Mechanical Engineering	TRI: Textile Research Institute (Princeton NJ 08542)
CivE: Civil Engineering	M.I.T.: Mass. Inst. of Technology	UAB: Univ. of Alabama-Birmingham
Clemson (C): Clemson University, Clemson SC 29634	NC State (N): North Carolina State University, Raleigh NC 27695	UC-Davis: University of Calif - Davis
Cornell (B): Cornell University, Ithica NY 14853	NMR: nuclear magnetic resonance	UD: = University of Delaware
dpf: denier per filament	PET: poly(ethylene terephthalate)	UG: University of Georgia
ESR: electron spin resonance	PhiladelphiaU (P): Philadelphia University, Philadelphia PA 19144	UNC-G: University of North Carolina at Greenville
Fib: Fiber	Poly Sci: Polymer Science	UMassD (D): University of Massachusetts at Dartmouth, MA 02747
Georgia Tech (G): Georgia Institute of Technology, Atlanta GA 30332	S: University of Sydney, Australia	UNL: University of Nebraska at Lincoln
IPST or InstPaperSci&Tech: Institute of Paper Science &Technology	TAM: Textile and Apparel Management	UNO: University of New Orleans
ITT: Institute of Textile Technology, Charlottesville VA 22903-4614	[TC] ² :Textile/Clothing Technology Corp	UofPA: University of Pennsylvania
LSU: Louisiana State University	TE: Textile Engineering	U of Tenn: University of Tennessee
	Tex: Textile	URI: Univ. of Rhode Island
	TextE: Textile Engineering	
	TFE: Textile and Fiber Engineering	