

the fiber society

for the advancement of scientific knowledge
pertaining to fibers, fiber based products, and fibrous materials



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Fall 1994 Meeting
Atlanta, GA
November 14-16, 1994
TECHNICAL PROGRAM

Monday, November 14, 1994

SESSION I: Science and Technology of Cellulosic Fiber Formation

Discussion Leader: Richard Gilbert, NC State University, Raleigh, North Carolina, USA

Global Situation and Trends for Cellulosic Man-Made Fibers

Franz Kogler, Lenzing AG, Lenzing, Austria

Activation of dissolving pulp by electron processing

Geza Hidasi and Frau Poggi, Faserwerk Kelheim, Kelheim, Germany, Srinivasan Rajagopal and Terry Stepanik, AECL Research, Pinawa, Manitoba, Canada, and David Frec, AECL Acceleratore, Vancouver, Canada

The Formation and Structure of a New Cellulosic Fibre

S. B. Smith, Courtaulds Research and Technology, Coventry, UK

Elastic Constants and Strength of Cellulosic Fibers - Theoretical Estimates of Ultimate Material Behavior

Johannes Ganster, Case Western Reserve University, Cleveland, Ohio, USA, and Hans-Peter Fink, Fraunhofer-Institute of Applied Polymer Research, Teltow, Germany

SESSION II: Fiber Formation, Processing and Structure

Discussion Leader: Steve Michielsen, DuPont Company, Wilmington, Delaware, USA

Determination Of Polymer Melt Elongational Rheology

John R. Collier and Ajit Pendse, Louisiana State University, Baton Rouge, Louisiana, USA

Polymer Blend Morphology In Fiber Spinning

M. S. Elision and A. D. Padsalgikar, Clemson University, Clemson, South Carolina, USA

Modeling Thermally Induced Crimp Regeneration

Warren F. Knoff, DuPont Advanced Fibers Systems, Richmond, Virginia, USA

Heat Setting Nylon 66 Carpet Yarns: Its Influence on Morphology-Related Dye Streaks and Crimp-Related "Optical" Streaks

Richard W. Miller, Monsanto Chemicals Group, Pensacola, Florida, USA

SESSION III: Student Papers & Fiber Society Award Address

Discussion Leader: Stanley Backer, Massachusetts Institute of Technology, Cambridge, Massachusetts, USA

Modification of Mechanical Properties of Kevlar Fiber by Polymer Infiltration

Ashish Mathur, Fiber Science Program, Cornell University, Ithaca, NY

Orientation Measurement in Model Structures Using Direct Tracing

Ravi Ramanathan, University of Maryland

Characterizing Crystalline Order in Oriented Polymers: A Comparative Study With Poly(Ethylene Terephthalate) Fibers

Varunesh Sharma, Polymer Education and Research Center, Georgia Tech, Atlanta, GA

Fiber Society Award Address

Behnam Pourdeyhimi, U. Maryland

Tuesday, November 15, 1994

SESSION IV Fine Structure and Properties of Polymer Fibers

Discussion Leader: Maurits Northolt, Akzo Nobel Central Research, Arnhem, The Netherlands

Structure/Property Relationships in Fibers as Revealed by Raman Spectroscopy

R. J. Young, University of Manchester, Manchester, UK

Investigation of High Performance Polymer Fibers by Molecular Simulation and Atomic Force Microscopy

Gregory C. Rutledge, Massachusetts Institute of Technology, Cambridge, MA, USA

Features of Micro and Macro Deformation of Highly Oriented Fibers from Rigid Chain Polymers

A. Slutsker, A. F. Ioffe Physicotechnical Institute of Russian Academy of Sciences, St. Petersburg, Russia

Yielding and Hysteresis of Polymer Fibers

M. G. Northolt, Akzo Nobel Central Research, Arnhem, The Netherlands

SESSION V: Structure and Properties of Fiber-Reinforced Composites

Discussion Leader: Peter Schwartz, Cornell University, Ithaca, New York, USA

Laser Raman Microscopy; A New Stress/Strain Measurement Technique for the Remote and On-Line Inspection of Fibers and Composites

Costas Galiotis, Queen Mary Westfield College, London, UK

Modeling of Interfaces in Fibrous Structures

Michael Keefe and Stephanie Means, University of Delaware, Wilmington, Delaware, USA

High Strength Polymer/Glass Fiber Composites For Fluid Containment

Liza Monette and M. P. Anderson, Exxon Research & Engineering Company, Annandale, New Jersey, USA

Application of the Meso-Volume Concept to the Prediction of Elastic Properties of Rigid Textile Structures

Christopher M. Pastore, N.C. State University, Raleigh, North Carolina, USA

SESSION VI: High Performance Fiber Assemblies

Discussion Leader: David Brookstein, Philadelphia College of Textiles and Science, Philadelphia, Pennsylvania, USA

Geometric Analysis of Braided Structures and Processes

Peter Popper, DuPont Company, Wilmington, Delaware, USA, and Guang-wu Du, Drexel University, Philadelphia, Pennsylvania, USA

Advanced Knitted Structures for Industrial End Uses

Sam Raz, Philadelphia College of Textiles and Science, Philadelphia, Pennsylvania, USA

Application of High Thermal Conductivity Pitch-based Carbon Fibers for Electronic Thermal Management

David Maass, Albany International Research Company, Mansfield, Massachusetts, USA

Wednesday, November 16, 1994

SESSION VII Textile Engineering Science

Discussion Leader: Bhuvanesh Goswami, Clemson University, Clemson, South Carolina, USA

Theory of Fiber Migration in Ring Spun/Twisted Yarns Revisted

Mishu I. Zeidman, Subhash K. Batra and Moon W. Suh, North Carolina State University, Raleigh, North Carolina, USA, and Kearney Q. Robert and A. Paul Sawhney, Southern Regional Research Center, U. S. Department of Agriculture, New Orleans, Louisiana,

USA

Control of Tension in a Ballooning Yarn

N. Rajeev and C. Rahn, Clemson University, Clemson, South Carolina, USA

The Influence of Strain Rate on the Contribution of Fiber Strength to Cotton Yarn Strength

R. A. Taylor, United States Department of Agriculture-ARS, CQRS, Clemson, South Carolina, USA

Static Fatigue Behavior of Cotton Warp Yarn

Rajesh D. Anandjiwala and Bhuvnesh Goswami, Clemson University, Clemson, South Carolina, USA

On Information, Technology, Competitiveness and Integrated Textile Complex

Sundaresan Jayaraman, Georgia Institute of Technology, Atlanta, Georgia, USA

SESSION VIII: Physico-chemical Aspects of Textile Materials and Processes

Discussion Leader: Stanley Ross, Henkel Corporation, Mauldin, South Carolina, USA

Effects of Sodium and Calcium Hydroxide on Polyester Fabrics

M. Haghghat Kish, M. Yousefi and M. Nouri, Amirkabir University of Technology, Tehran, Iran

"Liquiphobic" Interactions within Fibrous Networks

Bernard Miller, Textile Research Institute/Princeton, New Jersey, USA

Surface Energies of Fibers And Finishes and Their Importance in Spreading

Y. K. Kamath, C. J. Dansizer and H. D. Weigmann

Textile Research Institute/Princeton, Princeton, New Jersey, USA

HF Drying of Yarn Packages

N. Carneiro, F. V. Vasconcelos, L. Hes and M. F. Lima, Universidade do Minho,

Guimaraes, Portugal

Ultrasound Aided Exhaustion Dyeing

David S. Klutz, Perry L. Grady, Gary N. Mock, and C. Brent Smith, North Carolina State University, College of Textiles, Raleigh, North Carolina, USA

Wednesday, November 16

Science of Spider Silk Symposium in Honor of Dr. Robert Work

Discussion Leader: Mike Jaffe, Hoechst-Celanese Corporation, Summit, New Jersey, USA

Fibers from the Spider *Nephila clavipes*: Nature's Example of a Biopolymer with Excellent Mechanical Properties

Lynn W. Jelinski, Cornell University, Ithaca, New York, USA

Dynamic Properties of Dragline Silk from the Spider *Nephila clavipes*

Stephen A. Fossey, John Song, Philip Cunniff, and David L. Kaplan, U. S. Army Natick Research, Development and Engineering Center, Natick, Massachusetts, USA

Lessons from Biology: Structure and Properties of Spider Dragline Silk

Ronald K. Eby, The Maurice Morton Institute of Polymer Science, University of Akron, Akron, Ohio, USA

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