

# the fiber society

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



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Fall 1997 Meeting Program  
Knoxville, TN  
October 20-22, 1997  
**THE FIBER SOCIETY**  
**FALL 1997 GENERAL TECHNICAL CONFERENCE**

Co-sponsored By:

**University of Tennessee**  
**Nonwoven Cooperative Research Center**  
**TRI, Princeton**

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## **Monday, October 20, 1997**

7:30 am REGISTRATION

8:25 am OPENING REMARKS:

Dr. Behnam Pourdeyhimi, President

Dr. Gajanan Bhat, General Chairman

CHAIRPERSON FOR THE DAY: Gail Eaton

8:30 am **SESSION I: FIBERS**

Roger Ross, Session Chair

- HIGH SPEED MELT SPINNING OF POLY (L-LACTIC ACID) FILAMENTS  
K.Mezghani & J.Spruiell, University of Tennessee, Knoxville, TN
- STRUCTURE & PROPERTIES OF HIGH PERFORMANCE FIBERS  
PRODUCED FROM WHOLLY AROMATIC POLYMERS  
I. Karacan & N. Shah, UMIST, Manchester, UK
- ULTRA-HIGH MODULUS POLYPROPYLENE FIBERS  
B. L. Deopura & P. Kar, Indian Institute of Technology, Delhi, India

10:15 - 10:35 am BREAK

- A MECHANISM OF FATIGUE FAILURE IN PA6-6 AND PA6 FIBERS  
L. Nasvi & A. Lallam, Laboratoire de Physique et Mecanique Textiles, Mulhouse, France
- FIBER FORMING CELLULOSE AND LIGNOCELLULOSE SOLUTIONS  
O. Romanoschi, J. C. Collier, I. Negulescu & S. Petrovan, Louisiana State Univ, Baton Rouge
- REAL-TIME X-RAY AND RAMAN STUDIES OF 6,6 NYLON DRAWING  
A.D. Kennedy, B.S. Hsiao, R.A. Leach, D.B. Chase, & P. Harney, duPont; B. Chu, SUNY, Stonybrook

12:15 pm LUNCH

1:30 pm **SESSION II: NONWOVENS**

Ed Engle, Jr., Session Chair

- DEVELOPMENT OF AN INSTRUMENT FOR THE EVALUATION OF BIAXIAL STRESS-STRAIN RESPONSE OF FABRIC  
T. Ghosh, Nonwovens Cooperative Res, NCSU, Raleigh, NC.
- NEW DEVELOPMENTS FOR SPUNLACING COTTON  
C. Allen, Cotton, Inc., Raleigh, NC

2:40 - 3:00 pm BREAK

- EFFECT OF SOLVENT TREATMENT ON COTTON/CELLULOSE ACETATE NONWOVENS  
H.Suh, K.E.Duckett & G.S.Bhat, University of Tennessee, Knoxville, TN
- PROBABILISTIC MODELS FOR THE GEOMETRICAL STRUCTURE OF RANDOM FIBER WEBS  
M. W. Suh, H. Chun & J. L. Woo, Nonwovens Cooperative Res, NCSU, Raleigh, NC
- EVALUATION OF NONWOVEN WEB STRUCTURE USING IMAGE ANALYSIS  
R. Bresee & Z. Yan, Univ of Tennessee, Knoxville, Tennessee

4:50 pm TRI PRINCETON AWARD

5:00 pm ANNUAL MEMBERSHIP BUSINESS MEETING

6:00 pm RECEPTION

**Tuesday, October 21, 1997**

CHAIRPERSON FOR THE DAY: Subhash K. Batra

9:00 am **SESSION III: TEXTILE MECHANICS**

David Brookstein, Session Chair

- THE FUNDAMENTAL DEVELOPMENT OF TOTAL MATERIAL DESIGN SYSTEM FOR WOVEN FABRICS OF APPAREL USE  
M. N. Suresh & T. Matsuo, Kyoto Institute of Technology, Kyoto, Japan
- COMPUTER AIDED ANALYSIS OF LOOM BEATING-UP MECHANISMS  
Y. Wang & H. Sun, Georgia Institute of Technology, Atlanta, GA

10:15 - 10:35 am BREAK

- DEFORMATION OF A SINGLE HELIX UNDER EXTENSION, COMPRESSION AND BENDING  
F.Goktepe, C.A.Lawrence& G.A.V.Leaf, University of Leeds, Leeds, UK.
- A NEW HIGH SPEED DYNAMOMETER TO SUBJECT TEXTILE YARNS AT HIGH STRAIN RATES  
J. M.Freyburger, J.Y.Drean & F.A. Marques, Laboratoire de Physique et Mecanique Textiles, Mulhouse, France,  
& M.E.Cabeco Silva, Univ of Minho, Guimaraes, Portugal

11:45 am LUNCH

1:15 pm **SESSION IV: STUDENT PAPER COMPETITION**

There will be Three Student Papers

2:15 - 2:35 BREAK

2:35 pm **SESSION V: COTTON FIBERS & YARNS**

Devron Thibodeaux, Session Chair

- COLOR GRADING OF COTTON  
Luo Cheng, Zellweger Uster Inc., Knoxville, TN,  
K. E. Duckett, The University of Tennessee, Knoxville, TN  
& M. D. Watson, Cotton Inc., Raleigh, NC
- TENSILE PROPERTIES OF SLACK COTTON FIBER BUNDLES: THEORIES & APPLICATIONS TO HVI TESTING  
X. Cui, T. A. Calamari, Jr., USDA/ARS, SRRC, New Orleans,LA,  
M. W. Suh and S. K. Batra, NCSU, Raleigh, NC
- COMPARATIVE STUDY OF YARN REGULARITY USING CAPACITIVE AND OPTICAL METHODS  
R. M. Vasconcelos & M. Lima, University of Minho, Guimaraes, Portugal
- IMPACT OF TECHNOLOGY ON YARN QUALITY  
B. Oxenham, NC State University, Raleigh, NC.

5:30 pm **POSTER SESSION & RECEPTION**

K. E. Duckett, Session Chair

7:30 pm BANQUET & AWARD CEREMONY

After Dinner Speaker:

M. Srinivasarao, N. C. State University: "BIOLOGICALLY INSPIRED DESIGN:  
COLOR ON WINGS AND SCALES"

**Wednesday, October 22, 1997**

CHAIRPERSON FOR THE DAY: J. E. Spruiell

8:30 am **SESSION VI: GENERAL FIBER & TEXTILE SCIENCE**

Geraldine M. Eaton, Session Chair

- GLOBAL CONFORMABILITY TESTING OF FABRICS:A NEW SIMPLIFIED APPROACH  
B. Miller, TRI/Princeton, Princeton, NJ
- RECENT ADVANCES IN THE FIELD OF WETTING AND SPREADING OF SPIN FINISHES ON FIBERS  
E. R. Mathis, Henkel KGaA, Dusseldorf, Germany.
- COMPUTER PREDICTION OF COLOUR SENSITIVITY OF DYE RECIPES  
P.B.Chen, C.W.Marcus.Yuen, K.W.Yeung & C.K.Yeung, Hong Kong Polytechnic University

10:20 - 10:40 am BREAK

- POLYMERIC CARBOXYLIC ACIDS AS NONFORMALDEHYDE DURABLE PRESS FINISH FOR COTTON FABRICS  
C.Q.Yang, University of Georgia, Athens, GA.
- A STUDY OF SMOLDERING IN UPHOLSTERY USING THERMAL IMAGING  
S.Gandhi & S. M.Spivak, University of Maryland, College Park, MD
- EFFECT OF ENZYMATIC HYDROLYSIS ON THE LOW-STRESS MECHANICAL BEHAVIOR AND TACTILE QUALITY OF COTTON FABRICS  
P.Radhakrishnaiah, X. Meng, G.Huang & Y.Wang, Georgia Institute of Technology, Atlanta, GA  
& G.Buschle-Diller & W. K. Walsh, Auburn University, Auburn, AL

12:25 pm ADJOURN

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