

## **GAJANAN S. BHAT, PhD**

Georgia Athletic Association Professor of Fibers and Textiles  
Department Head, Textiles Merchandising & Interiors  
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### **EDUCATION**

Ph. D. in Textile Engineering, Georgia Institute of Technology, Atlanta, GA	1990
M. S. in Textile Engineering, Georgia Institute of Technology, Atlanta, GA	1987
M. Tech. in Fiber Science & Technology, IIT, Delhi, India	1984
B. Tech. in Textiles, Bangalore University, India	1981

### **EXPERIENCE**

July 2016 – Current, **Department Head, Textiles Merchandising & Interiors and Georgia Athletic Association Professor of Fibers and Textiles**, University of Georgia: Responsibilities include complete academic administration including budget, human resources, space management etc. Increased the department visibility, reputation and ranking by hiring several new faculty and mentoring them. Grew the department enrollment by 30% and increased the budget to improve the infrastructure for department. Faculty productivity increased with research funding, publications and presentations in international conferences, every year since 2016. Also conducting research in various areas of fibers and textiles. Setting up a Protective Fabrics Research Center with pilot lines.

January 2008–June 2016, **Director, Nonwoven Materials Research Laboratory**. As the director of UTNRL, expanded nonwoven materials research at the University of Tennessee, Knoxville (UTK). Established the only pilot line capability in the world to evaluate technologies for meltblown nanofiber nonwovens. Conducted research with many industries and helped them successfully develop new products. Worked with more than 50 corporations on contract research.

August 2006 – December 2007, **Associate Director, Textiles and Nonwovens Development Center**. Was responsible for the management of the nonwovens research center with half a million dollars per year in research expenditure and six employees.

August 2002 – June 2016, **Professor**, Materials Science and Engineering, UTK. Responsibilities included teaching, research and service. Conducted research in different areas of polymer processing, including melt blown and spun bonded nonwovens, biodegradable nonwovens from cellulosic fibers, nanofibers, protective garments, processing recycled plastics, and high performance fibers.

August 1990 – July 2002, **Assistant Professor**, 1990-1996, **Associate Professor**, 1996-2001, and **Professor, Department of Textile, Retailing and Interior Design**, UTK. Responsibilities

included teaching, research and service. Conducted research in different areas of polymer and fiber science. Taught textiles for Retailing and Interior Design students and other fiber science course.

Summer 2005, **Visiting Scientist**, NASA, MSFC Huntsville, AL, **Developed nonwoven-based multifunctional composites** for space applications, and CNT reinforced nanofibers.

Summers 1994, 1995, and 1997, **Visiting Scientist**, Air Force Office of Scientific Research, Phillips Laboratory, Edwards AFB, CA. **Produced hollow and solid fibers from Ultem** for micromaterial fabrication.

April 1990 – July 1990, **Research Engineer**, Image Carpets Inc., Rome, GA. Worked in the synthetic fiber plant producing carpet fibers from post-consumer recycled polyester (PET). Responsible for setting up an analytical laboratory to analyze the polymer and the fibers, and suggesting improvements to processing of recycled PET.

September 1984 – March 1990, **Graduate Research Assistant**, School of Textile and Fiber Engineering, Georgia Tech, Atlanta, GA. Conducted dissertation research on stabilization of acrylic precursors for carbon fibers. Completed special projects on structure and properties of high-speed melt-spun polyester/polyamide blends, feasibility of converting polyolefins into carbon fibers, and the degradation behavior of nylon marine ropes. Also worked on a DOE sponsored project dealing with the application of powdered chemicals to textile substrates by powder spraying and electrostatic deposition.

September 1981 – July 1982, **Technical Management Trainee**, J. K. Synthetics Ltd., Kota, India. Worked on all aspects of fiber production involving, nylon, nylon tire-cord, polyester and acrylic fibers.

## HONORS AND AWARDS

TAPPI NET division Technical Achievement Award, 2014.

TechniTex India Research Achievement Award, 2008.

Fellow of The Textile Institute, 2005.

Best Paper Award, Association of the Nonwoven Fabrics Industry, 2004.

Distinguished Achievement Award, The Fiber Society, 1999.

Listed as Who's Who in Science and Engineering, Marquis Who's Who, 1997-present.

Nancy Belck Foundation Award, College of Human Ecology, 1997.

Outstanding Young Engineering Alumni from Georgia Tech, 1996.

Coordinating Officer, Graduate Student Senate, Georgia Tech, Atlanta, GA, 1986-1987.

Graduate Student Senate, Georgia Tech, Atlanta, GA, 1985-1986.

National Merit Scholarship Holder, India, 1974-1981.

Gold Medal in B. Tech. Textiles, Bangalore University, 1981.

## SOCIETY MEMBERSHIPS

The Fiber Society, 1986-present.  
The Textile Institute, 2004-present.  
Sigma Xi Honor Society, 1995-2000.  
Technical Association of the Paper and Pulp Industry (TAPPI), 2002-present  
Phi Kappa Phi Honor Society, 1998-present.  
Association of the Nonwoven Fabrics Industry (INDA), 1992-present.

## PROFESSIONAL SERVICE

Editorial Board Member, Journal of Textile Science and Engineering (2013-current)  
Editorial Board Member, Journal of Materials Science and Chemical Engineering (2013-current)  
Editorial Board Member, International Journal of Textile Engineering and Processes (2016-current)  
Editorial Board, Journal of Nanomaterials and Molecular Nanotechnology. (2012-current)  
Area Editor, Journal of Engineered Fibers and Fabrics (JEFF) (2010-current)  
Guest Editor, Journal of Nanomaterials (2011-current)  
Editorial board member for the journal *Materials Manufacturing and Processes*.1995-2003.  
Co-Chair of the American Filtration Society Fall Conference (2015)  
Member of Finance Committee, Lectureship Committee and the Governing Council of the Fiber Society, 2010-2012  
Co-Chairman, American Filtration Society Annual Conference, June 2012.  
Member of the scientific organizing committee ICONTEX, Istanbul Turkey October 2011.  
Member of the Organizing Committee, Fiber Society Conference, Hong Kong, May 2011.  
Member Organizing Committee, The Fiber Society International Conference, Bursa, Turkey May 2010.  
Chair of the Technical Information paper (TIP) 1205-01, and Education Coordinator, TAPPI, 2006-2008.  
President, The Fiber Society, 2009.  
Vice President, The Fiber Society, 2008.  
Member of the Governing Council, the Fiber Society, 2006-2007.  
Chair of Distinguished Achievement Awards Committee, the Fiber Society (2007).  
Departmental Representative, All College Council, UTK , 1993-1995 and 1999.  
Organized the Spunbond-Meltblown Tutorial, and co-chaired a session on flame retardancy for INTC 07.  
President, All College Council, UTK, 2000-01.  
Member, Organizing Committees, INTC 2001-2007.  
Member, Scientific Organization Committee, HPTEX (India), 2004.  
Member, International Academic Committee, ITCM (Coimbatore, India), 2004.  
Chair, Student paper session, INTC 2002.  
Member, Organizing Committee, Beltwide Cotton Conference, 2001-**present**.  
Session organizer, INDA -TAPPI Conferences, 2001-2002.  
Member, Distinguished Awards Committee and the Governing Council, The Fiber Society, 2002-present.

Secretary, Sigma Xi Honor Society, UTK Chapter, 1999-2000.  
President Elect, All College Council, UTK , 1999-2000.  
General Chairman, Fiber Society General Technical Conference, Knoxville, TN, 1997.  
Member, Library Selection Committee for the Department, UTK , 1993-96.  
Chair, Faculty Development and Concerns Committee, College of Human Ecology, UTK , 1995.  
Member, Adhoc Committee on Teaching Evaluation/Improvement, UTK, 1993.  
Member, Adhoc Committee on Library Holdings, UTK, 1992.  
Book Reviewer for the journal *Materials and Manufacturing Processes*. 1995-1998.  
Symposium Organizer, ASME, Annual Winter Meeting, San Francisco, CA (with T. S. Srivatsan), 1995.  
Reviewed research papers for many different journals such as Journal of Applied Polymer Science (1997-current), Journal of Textile Institute (2000-current), Journal of Industrial Textiles (2004-current), Journal of Engineered Fibers and Fabrics (2007-08), Journal of Nanomaterials, Journal of Materials Science (2005-current), Polymer Engineering and Science (2008) and Journal of Engineered Fibers and Fabrics.

## **TEACHING EXPERIENCE**

TXMI 8180 – Physics of Polymers and Fibers  
TXMI 2100 – Textiles for Consumers  
TXMI 3500 - Textiles  
MSE 201- Introductions to Materials Science & Engineering  
TS 120 – Textiles for Consumers  
TS 524 - Advanced Dyeing and Finishing  
MSE 220 - Selection of Soft goods  
MSE 340 - Principles of Polymeric Materials  
MSE 370 - Materials Processing  
MSE 552 - Fiber Science (developed the course)  
MSE 555 - Nonwovens Processing and Characterization (developed the course)  
MSE 652 - High Performance Fibers

## FUNDED RESEARCH GRANTS

2020-Current	“Advanced Personal Protective Fabrics,” AFFOA/DoD. \$950,000
2018-current	“Antimicrobial Coating of Nonwovens for Filter Media and other Applications” Kimmering Associates.
2017-current	“Evaluation of Spa Filters,” Pleatco.
2017-19	“Elastomeric Cotton Nonwovens,” USDA.
2016-17	“Flame Retardant Cotton Nonwovens,” US Army.
2015-16	“Meltblowing studies with Various Lignin Compositions,” ORNL
2014-15	“Cotton rich Nonwovens and Composites,” Cotton Incorporated.
2014	“Meltblowing Carbon Fiber Precursors,” ORNL.
2013-2016	“Improved Carbon Nanotube Fibers through Crosslinking and Densification,” NASA.
2008 - 2016	“Nonwovens Research and Service for Industry”- UTNRL through Multiple Corporations (25+ companies).
2012 - 2013	“Meltblown Nanofibers,” UFI, Italy.
2011 - 2013	“Monolayer Coating of Inorganic Membranes, ORNL
2010 - 2014	“Nanoparticle Reinforced Nonwoven-Based Composites, ONR.
2009 – 2011	“Nanofiber Nonwovens,” Ethicon, J&J
2008 – 2010	“Processing and Evaluation of Meltblown Nonwovens,” Lubrizol.
2008 – 2009	“Meltblown Nonwovens from PLA,” Natureworks, LLC.
2008 – 2009	SARIF grant, UTK, for the purchase a nanofiber die assembly.
2007 – 2010	“Durable Flame Retardants for Cotton Nonwovens,” Cotton, Inc.
2007 – 2009	“Fibers from a High Temperature Polymer,” Celanese-Ticona.
2007 – 2008	“Structure and Properties of Biopolymer Nonwovens,” Ethicon.
2006 – 2008	“Flame Retardant Cotton-Based Nonwovens,” USDA.
2006	“Evaluation of Cotton-Based Wipes,” Cotton Inc.
2006 – 2008	“Polyethylene Based Composites for Space Applications,” NASA.
2006 – 2008	“Evaluation of Nanoclay Reinforced Films and Fibers” Techmer PM (though the Center for Materials Processing (CMP), UTK.
2005 – 2006	“Evaluation of Degradability of Polymer Films,” Cyclotron Systems, Inc (CTI).
2005	SARRIF Equipment Award, UTK (with L.C. Wadsworth).
2004 – 2005	“Material Variables in Thermal Bonding,” Nonwovens Cooperative Research Center (NCRC), North Carolina State University.
2002 – 2003	“Evaluation of TiO <sub>2</sub> and Other Additives,” GV PolyTex, Inc.
2003 – 2004	“Cotton Based Composites for Automotive Applications, Cotton, Inc.
2002 – 2003	“Acquisition of a Multi-Stage Tensile Tester,” UTK SARIF Award.
2001	“Biodegradable Composites from Cellulosic Fibers,” Professional Development Award, UTK.
2000 – 2001	“Biodegradable Nonwovens from Cotton Fibers,” Cotton, Inc.
1999 – 2002	“Disposable Nonwovens Incorporating Cotton and Other Natural Fibers,” USDA (with K. E. Duckett).
1999 – 2000	“Evaluation of the 3-D Donning Test,” Beiersdof Jobst, Inc.
1999	“Fabrication of Nonwovens from Cotton/Cellulose Acetate Blends,” Cotton, Inc.

- 1998 – 2000 “Role of Fiber Morphology in Thermal Bonding,” NCRC, NCSU, Raleigh (with J. E. Spruiell).
- 1998 “Filtration of Odors from Poultry Farms,” Agricultural Exptl. Station, UTK.
- 1997 “Evaluation of Hollow Ultem Fibers Hughes,” Hughes STX Corp.
- 1997 Nancy Belck Faculty Enrichment Award, College of Human Ecology, UTK.
- Summer 1997 “Production of Hollow Polyimide and Carbon Fibers,” for conducting research at Edwards AFB, CA, Air Force Office of Scientific Research.
- Summer 1997 “Processing and Characterization of Carbon Fibers from Special Precursors,” Southeastern Universities Research Association, Washington, DC.
- 1996 – 1997 “Melt Blowing of Metallocene Polypropylene,” Exxon Chemical Company (with S. Malkan).
- 1995 – 1997 “Fabrication of Nonwovens from Cotton/Cellulose Acetate Blends,” Cotton, Inc. (with K. E. Duckett).
- 1995 – 1996 “Carbon Fibers from Polyimide Precursors,” Professional Development Research Award from UTK.
- 1994 – 1995 “Evaluation of the Processability of Polymer Blends,” Techmer PM.
- 1995 “Investigation of the Spinnability of Specialty Polymers,” Summer Faculty Support to Conduct Research at the Phillips Laboratory, Edwards AFB, CA, Air Force Office of Scientific Research.
- 1994 – 1995 “Evaluation of the Performance Properties of Composite Nonwoven Fabrics,” PolyBond Inc
- 1994 – 1995 “Characterization of Polyetherimide Fibers,” Phillips Laboratory, Edwards AFB, CA, Sept. 1995.
- 1994 “Polyetherimide Fibers: Production, Processing and Characterization,” Summer Faculty Support to Conduct Research at the Phillips Lab., Edwards AFB, CA, Air Force Office of Scientific Research.
- 1993 “Rheological Behavior of Spunbonded Polypropylene Fibers,” Exxon Chemical Company. (with S. R. Malkan and L. C. Wadsworth)
- 1992 – 1994 “Biodegradability of Cotton/Cellulose Acetate Nonwoven Fabrics,” Professional Research Award from UTK (with K. E. Duckett).
- 1992 – 1993 “Thermal Analysis of Polymeric and Textile Materials,” Exxon Education Foundation.
- 1992, “Evaluation of Experimental Nonwoven Composite Fabrics,” Poly-Bond, Inc.
- 1991 – 1993 “Recycled Polymers Program,” Consortium Sponsored Research. (with M. Dever and L. C. Wadsworth).
- 1991, “Investigation of Rapid Stabilization of Acrylic Fibers,” from Southeastern Universities Research Association to conduct research at ORNL, Washington, DC.
- 1991 – 1992 “Use of Compatibilizers to Process the Post-Consumer Recycled Commingled Plastics to Produce Nonwovens,” Research Award, UTK.
- 1991, “Processing Studies and Performance Characterization of Melt Blown Nonwoven Fabrics Made from Commingled Recycled Plastics,” from the Center for Plastics Recycling Research, Rutgers, NJ (with M. Dever and L. C. Wadsworth).

## PUBLICATIONS

### Refereed Journal Articles:

S. Wu, P. Sikdar and G. S. Bhat, "Recent Progress in Developing Ballistic and Anti-Impact Materials: Nanotechnology and Main Approaches" *Defence Technology*, July 2022.  
<https://doi.org/10.1016/j.dt.2022.06.007>

P. Sikdar, S. Islam, A. Dhar, G. S. Bhat, D. Hinchliffe, S. and B. Condon, "Barrier and Mechanical Properties of Water-based Polyurethane Coated Hydroentangled Cotton Nonwovens," *Journal of Coatings Technology and Research*, 19, 1255-1267 (2022).  
<https://doi.org/10.1007/s11998-021-00609-3>

N. Wang, H. Sun, X. Yang, W. Lin, W. He, H. Liu, G, Bhat and B. Yu, "Flexible Temperature Sensors Based on RGO/CNTs@PBT Melt Blown Nonwoven Fabrics," *Sensors and Actuators A: Physical*, 339, 113519 (2022). <https://doi.org/10.1016/j.sna.2022.113519>

P. Sikdar, G. S. Bhat, D. Hinchliffe, S. Islam<sup>1</sup>, and B. Condon, "Microstructure and Physical Properties of Composite nonwovens Produced by Incorporating Cotton Fibers in Elastic Spunbond and Meltblown webs for Medical Textile," *Journal of Industrial Textiles*, 51(4S) 6020S-6050S (2022). <https://doi.org/10.1177/15280837211004287>

S. Islam and G. Bhat, "Progress and Challenges in Self-Healing Composite Materials," *Materials Advances*, 2021. : <https://doi.org/10.1039/D0MA00873G>

N. Hoda, F. Mert, F. Kara, H. G. Atasagun, and G. S. Bhat "Effect of Process Parameters on Fiber Diameter and Fiber Distribution of Melt-Blown Polypropylene Microfibers Produced by Biax Line," *Fibers and Polymers*, 22, 285-293, (2021). <https://doi.org/10.1007/s12221-021-9155-5>

M. E. Messiry, G. Bhat, A. Eloufy, S. A. Latif, and Y. Ayman, "Acoustic Absorptive Properties of Meltblown Nonwovens for Textile Machinery," *Textile Research Journal*, 91 (11-12), 1341-1353, (2021). <https://doi.org/10.1177/0040517520980460>

G. Bhat, "Meltblown Nonwovens and Protective Fabrics: Challenges and Opportunities during COVID-19 and Beyond" *J. Nanomaterials and Mol. Nanotechnol.* 9, 5, (2020)  
DOI: 10.37532/jnmn.2020.9.5.284

H Sun, S. Peng, M. Wang, F. Zhu, G, Bhat and B. Yu, "Preparation and Characterization of magnetic PLA/Fe<sub>3</sub>O<sub>4</sub>-g-PLLA composite Melt Blown Nonwoven Fabric for Air Filtration," *Journal of Engineered Fibers and Fabrics*, 15, 1-13 (2020)

S Islam, M. El. Messiry, P. P. Sikdar, J. Seylar, and G. Bhat, "Microstructure and Performance Characteristics of Acoustic Insulation Materials from Post-consumer Recycled Denim Fabrics," *Journal of Industrial Textiles*, 1-27 (2020).  
<https://doi.org/10.1177/1528083720940746>

Y. Lu, H Sun, J. Cheng, J. Myong, H. M. Mehedi, G, Bhat and B. Yu, "High Performance Flexible Wearable Strain Sensor based on rGO and AgNWs decorated PBT Melt-blown Nonwoven Fabrics," *Sensors and Actuators A: Physical*, 112174 (2020)

<https://doi.org/10.1016/j.sna.2020.112174>

H. G. Atasagun and G.S. Bhat, "Advancement in Flushable Wipes: Modern Technologies and Characterization," *Journal of Industrial Textiles*, 49(6), 722-747 (2020).

DOI:10.1177/1528083718795910

G. Chen, G. S. Bhat, H. Azari, "Electret Characteristics of Meltblown Polylactic Acid Fabrics for Air Filtration Application," *Journal of Applied Polymer Sci.* 1-6 (2020).

DOI:10.1002/app.48309

H. Sun, Y. Xian, Y. Lai, H. Zhang, B. Yu, Y. Liu and G. Bhat, "Evaluation of Mercury Ions Adsorption Capacity of Copper-based Metal organic Frameworks/Poly(lactic acid) Composites," *Polymer plastics Technology and Materials*, (2019) pp 1-12.

<https://doi.org/10.1080/25740881.2019.1669648>

H. G. Atasagun and G. S. Bhat, "Assessing the Structural, Mechanical and Dispersible Characteristic of Flushable Nonwovens," *Textile Research Journal*, 1-12 (2019).

<https://doi.org/10.1177/0040517519873055>

S. Islam and G. Bhat, "Environmentally Friendly Thermal and Acoustic Insulation Materials from Recycled Textiles," *Journal of Environmental Management*, 251, 1-21 (2019).

<https://doi.org/10.1016/j.jenvman.2019.109536>

H. Sun, H. Zhang, H. Mao, B. Yu, J. Han, and G. Bhat, "Facile synthesis of the magnetic metal-organic framework  $\text{Fe}_3\text{O}_4/\text{Cu}_3(\text{BTC})_2$  for efficient dye removal," *Environmental Chemistry Letters*, (2019), 17, 1091-1096, DOI: 10.1002/APP.48309

G. S. Bhat and M. El-Messiry, "Effect of Microfiber Layers on Acoustical Absorptive Properties of Nonwoven Fabrics," *Journal of Industrial Textiles*, 1-21 (2019).

DOI:10.1177/1528083719830146

M. C. Evora, X. Lu, N. Hiremath, N. G. Kang, K. Hong, R. Uribe, G. Bhat and J. Mays "Single-step Process to Improve the Mechanical Properties of Carbon Nanotube Yarn," *Beilstein journal of Nanotechnology* 9, 545 (2018).

H. Sun, A. Xiao, B. Yu, G. Bhat and F. Zhao, "Effect of PLC and Compatibilizer on the Tensile and Barrier Properties of PLA/PCL Films," *Polymer (Korea)* 41, #2, 181-188 (2017).

DOI:10.7317/pk.2017.41.2.181

N. Hiremath, M. C. Evora, A. K. Naskar, J. Mays, and G. S. Bhat, "Polyacrylonitrile Nanocomposite Fibers from Acrylonitrile-grafted Carbon Nanofibers," *Composites Part B: Engineering*, 130, 64-69 (2017). doi:[10.1016/j.compositesb.2017.07.031](https://doi.org/10.1016/j.compositesb.2017.07.031)



M. C. Evora, N. Hiremath, X. Lu, N. Kang, L. Silva, G. Bhat, and J. Mays, "Effect of Electron Beam and Gamma Rays on Carbon Nanotube Yarn Structure," *Materials Research*, (0). (2017). doi:[10.1590/1980-5373-mr-2017-0102](https://doi.org/10.1590/1980-5373-mr-2017-0102)

X. Lu, N. Hiremath, K. Hong, M.C. Evora, V. H. Ranson, A. K. Naskar and J. Mays, "Improving Mechanical Properties of Carbon Nanotube Fibers through Simultaneous Solid-state Cycloaddition and Crosslinking," *Nanotechnology*, 28(14), 145603 (2017). doi:[10.1088/1361-6528/aa6223](https://doi.org/10.1088/1361-6528/aa6223)

N. Hiremath, G. Bhat and J. Mays, "A Review of Carbon Nanotube Based Fibers and yarns," *Polymer Reviews*, 57(2) 339-368 (2017) doi: [10.1080/15583724.2016.1169546](https://doi.org/10.1080/15583724.2016.1169546)

G. S. Bhat, V. Kandagor, R. Bhave, and D. Prather, "Structure and Properties of Meltblown Polyetherimide as High Temperature Filter Media," *International Journal of Chemical, Molecular, Nuclear, Materials and Metallurgical Engineering*, 11, 477-481 (2017).

B. Yu, M. H. Wang, Sun, F. Zhu, J. Han, and G. Bhat, "Preparation and properties of poly (lactic acid)/magnetic Fe<sub>3</sub>O<sub>4</sub> composites and nonwovens," *RSC Advances*, 7(66), 41929-41935 (2017). doi:[10.1039/c7ra06427f](https://doi.org/10.1039/c7ra06427f)

N. Hiremath, X. Lu, M. C. Evora, A. Naskar<sup>4</sup>, J. Mays and G. Bhat "Effect of solvent/polymer infiltration and irradiation on microstructure and tensile properties of carbon nanotube yarns" *Journal of Materials Science*, (2016). DOI: 10.1007/s10853-016-0249-1

Y. Yesil and G. Bhat, "Porosity and Barrier Properties of Polyethylene Melt Blown Nonwovens," *Journal of Textile Institute*, pp1-6 (2016). doi: [10.1080/00405000.2016.1218109](https://doi.org/10.1080/00405000.2016.1218109)

Y. Yesil and G. Bhat, "Structure and Mechanical Properties of Polyethylene Melt Blown Nonwovens" *International Journal of Clothing Science and Technology*, 28, #6, 780-793(2016).

G. Bhat, "Advances in Polymeric Nanofiber Manufacturing Technologies," *Journal of Nanomaterials and Molecular Nanotechnology*, (2016). doi: [10.4172/2324-8777.1000e108](https://doi.org/10.4172/2324-8777.1000e108)

W. Han, X. Wang and G. S. Bhat, "Investigation of the Nanofiber Breakup in the Melt Blowing Process," *Industrial and Engineering Chemistry Research*, (2016) doi:10.1021/acs.iecr.5b04472

N. Hiremath and G. Bhat, "Melt blown Polymeric Nanofibers for Medical Applications-An Overview" *Nanosci Technol* 2(1): pp 1-9 (2015).

W. Han, X. Wang and G. S. Bhat, "Investigation of the Nanofiber Breakup in the Melt Blowing Process," *Industrial & Engineering Chemistry Research*, 55 (11) 3150-3156 (2016). doi: 10.1021/acs.iecr.5b04472

G. Bhat, "Meltblown Submicron Fibers for Filter Media and other Applications," *International Fiber Journal*, 29 (2), 20-23, (2015).

G. Bhat, "Polymeric Nanofibers: Recent Technology Advancements Stimulating their Growth," *Journal of Textile Science and Engineering*, 5:185 (2015)  
doi: [10.4172/2165-8064.1000186](https://doi.org/10.4172/2165-8064.1000186)

V. Srivastava, R. Quinlan, A. Agapov, A. Kisliuk, G. Bhat, and J. Mays, "High-Yield Synthesis of Macroscale Conductive and Dispersible Carbon Nanostructures via Ultrasonication of Commercial Precursors" *Industrial & Engineering Chemistry Research*, 53 (23), pp 9781–9791 (2014) DOI: 10.1021/ie501659n

V. Srivatsava, R. Quinlan, A. L. Agapov, K. M. Nelson, A. Sokolov, G. Bhat and J. Mays, "Macroscopic Properties of Restacked, Redox-Liquid Exfoliated Graphite and Graphite Mimics Produced in Bulk Quantities" *Advanced Functional Materials*, (2014)  
DOI: 10.1002/adfm.201400484.

R. Hegde, J. E. Spruill and G. S. Bhat, "Investigation of the Morphology of Polypropylene-Nanoclay Nanocomposites," *Polymer International*, 63, 1112-1121 (2014)

M. Lalagiri, G. Bhat, V. Singh, S. Parameswaran, R. J. Kendall and S. Ramkumar, "Filtration Efficiency of Submicron Filters," *Industrial & Engineering Chemistry Research* 52 (46), 16513-16518 (2013).

P. Gulgunje, G. Bhat and J. E. Spruiell, "Influence of Molecular Orientation on the Melting Behavior of Poly (phenylene sulfide) Fibers," *Journal of Engineered Fibers and Fabrics*, 8(3), 83-88 (2013).

R. R. Hegde, G. S. Bhat, J. E. Spruiell, and R Benson, "Structure and Properties of Polypropylene Nanoclay Composites," *Journal of Polymer Research*, 20 (12), 1-13 (2013).

W. Han, X. Wang and G. S. Bhat, "Structure and Air Permeability of Melt Blown Nanofiber Webs," *Journal of Nanomaterials and Molecular Nanotechnology*, 2:3 (2013).  
doi:<http://dx.doi.org/10.4172/2324-8777.1000115>

R. Hegde, G. S. Bhat and B. Deshpande, "Crystallization kinetics and morphology of melt spun Poly (ethylene terephthalate) nanocomposite fibers," *Express Polymer Letters*, 7, 821-831(2013).

R. Uppal, G. Bhat, C. Eash, and K. Akato, "Meltblown Nanofiber Media for Enhanced Quality Factor," *Polymers and Fibers*, Vol. 14 (4), 660-668 (2013).

T. Lin, D. Luckas and G. S. Bhat, "Nanofiber Manufacture, Properties and Applications," *Journal of Nanomaterials*, vol. 2013, Article ID 368191 (2013).

D. V. Parikh, B. Ingber, S. Nam, G. S. Bhat, M. Warnock and L. Harington, "Flame Retardant Cotton Barrier Nonwovens for Mattresses," *Journal of Fire Science*, Vol. 31(3), 276-290 (2013).

G. S. Bhat and R. Nanjundappa, "Bond Structure and Tensile Properties of Thermal Bonded

Polypropylene Nonwovens,” *Textiles and Light Industrial Science and Technology*, Vol.2 (2) 49-53 (2013).

R. Hegde, B. Deshpande and G. S. Bhat, “Morphology and Properties of Nylon 6 Blown Films Reinforced with Different weight percentage of Nanoclay additives.” *International Journal of Polymer Science* 2012, Article ID 959035, 14 pages (2012).

P. Gulgunje, G. Bhat and J. E. Spruiell, " Structure and properties enhancement in poly (phenylene sulfide) melt spun fibers-Part III: Effect of two zone drawing and annealing," *Journal of Applied Polymer Science*, 125, #3, 1693-1700 (2012).

P. Gulgunje, G. Bhat and J. E. Spruiell, "Structure and Properties Development in Poly(phenylene sulfide) Fibers- Part II: Effect of One Zone Draw-annealing," *Journal of Applied Polymer Science*, 125, #3, 1890-1900 (2012).

R. Hegde, J. E. Spruiell and G. S. Bhat, "Different Crystallization Mechanisms in Polypropylene-Nanoclay Concentrates," *Journal of Materials Research*, 27, #10, 1360-1371 (2012).

R. Uppal, G. Bhat, K. Akato, D. V. Parikh, S. Nam and B. Condon, “Antibacterial High Loft Cotton Nonwovens,” *Journal of Industrial Textiles*, 41, #4, 281-291 (2012).

P. Gulgunje, G. Bhat and J. E. Spruiell, “Structure and Property Development in Melt Spun PPS Fibers: Effect of Material and Melt Spinning Process Variables,” *Journal of Applied Polymer Science*, 122, #5, 3110-3121 (2011).

R. Hegde and G. S. Bhat, “Structure and Properties of Nanoclay Reinforced Polypropylene Spunbond Webs,” *Journal of Applied Polymer Science*, 118, 3141-3155 (2010).

R. Hegde and G. S. Bhat, “Nanoparticle Effects on Structure and Properties of Polypropylene Meltblown Webs,” *Journal of Applied Polymer Science*, 115 (2), 1062-1072 (2010).

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## PRESENTATIONS

"Sustainable Fibers and Textile Products: Current Status and Future Potential," International Conference on Sustainable Materials, Management and Innovative Technologies 2022 (ICSMMIT), Coimbatore, India, June 23-24, 2022. (Invited Talk)

"Surface Modification and Nanocomposite Coating on UHMWPE Fabrics," Techtexile North America, Atlanta, GA, May 17-19, 2022 (poster by Talon Shaw).

"Barrier and Performance Properties of Melt blown Nonwovens," Techtexile North America, Atlanta, GA, May 17-19, 2022 (poster by Partha Sikdar).

"Performance Properties of Water Based Polyurethane Coated Hydroentangled Cotton Nonwovens," Techtexile North America, Atlanta, GA, May 17-19, 2022 (poster by Avik Dhar).

"Effect of Processing Conditions on Wash Durability and Tensile Properties of Nanoparticle Coated UHMWPE Yarns," UGA CURO symposium April 4-5, 2022 (by Aysiah Gibbs).

"The Effect of Surface Modification on UHMWPE Fabrics and Their Polyurethane/Tungsten Disulfide Composites for Ballistic Applications," UGA CURO symposium April 4-5, 2022 (by Talon Shaw)

“Advances in Nonwoven Technical Textiles and Personal Protective Fabrics,” ITS Symposium 22, Alberta, Canada (Virtual), March 8-9 (2022).

“Modernization of PPE Supply Chain: Melt Blown and Mask Production Pilot Lines,” AFFOA Annual Member Event, MIT, Boston, October 20-21 (2021).

“Structure and Properties of Insulation Materials from Recycled Fabrics,” International Webinar on Textile Waste as a Resource for Technical Textile Applications, Coimbatore, India, July 29-30 (2021).

“Structure and Properties of Thermal and Acoustic Insulation Materials from Recycled Fabrics,” Materials Info 2021, Mind Authors Scientific Conference, March 29 (2021).

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“Sustainable Polymers and Fibers for Nonwovens: Current Status and Future Potential,” INDA RISE Conference, Raleigh, NC, Virtual, September 28-30 (2020).

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“Microstructure And Performance Properties Of Meltblown Nanofiber Nonwovens From A Biodegradable Polymer,” G. Bhat and H. Azari, In *4th International Symposium on Materials from Renewables*, Athens, GA October 2019.

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“Barrier and Mechanical Properties of Composite Nonwovens Produced from Hydroentangling Cotton Fibers with Elastomeric Webs,” Sikdar, P., Hinchliff, D., Condon, B., and Bhat, G., Poster session presented at the meeting of AATCC International Conference, Fort Worth, TX (2019) (by P. Sikdar).

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*The Fiber Society Fall Technical Conference*, Athens, GA, November 2017. (*presented by V.*  
*Caldwell*)

“Structure and Properties of Polypropylene Graphene Composite Filaments,” Poster at *The*  
*Fiber Society Fall Technical Conference*, Athens, GA, November 2017. (*Presented by H.*  
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“Structure and Properties of Melt Blown Polyetherimide as High Temperature Filter Media,” in  
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“Meltblown Nanofiber Nonwovens from Biodegradable Polymers,” AFS Annual Conference, Boca Raton, FL, June 4-7, 2012.

“Carbon Fibers from Rayon-based Precursors,” Proceedings of the Fiber Society Spring Conference, St. Gallen, Switzerland, May 23-25, 2012.

“Meltblown Ingeo Nanofibers,” Innovation Takes Roots 2012, Orlando, FL, February 20-22, 2012.

“Future of nanotechnology in Technical Textiles,” TechnoTex India, a conference organized by FICCI, Mumbai, India, August 25-27, 2011

“Meltblown Nanofiber Filter Media for Next Generation Filters” AFS Annual Conference, Louisville, KY, May 12-15, 2011.

“Role of Centers of Excellence in the Growth of Technical Textile Industries,” at FICCI Forum, New Delhi, India, Jan. 2011.

“A Comparative study of Through-Air Bonded and Calendered Cotton-based Nonwovens,” Proceedings of the Beltwide Conference 2011.

“Antibacterial Flame Retardant Cotton High Loft Nonwovens,” Proceedings of the Beltwide Conference 2011.

“Nonwoven Technical Textiles: Recent Advances and Future Opportunities,” BTRA Conference Mumbai, India, Dec. 2010

“Structure and Properties of Melt Blown PLA Micro- and Nano-Fiber Nonwovens” Fiber Society Fall Conference, Snowbird, UT, October 2010.

“Meltblown Nanofiber Filter Media for Enhanced Filtration Performance,” 10<sup>th</sup> International Filtration Conference, San Antonio, TX, Sept. 2011

“Nonwoven Technical Textiles: Recent Developments and Future Opportunities,” International Forum for Advanced Textiles – IFATex 2010, Wuhan, China, June 7-8, 2010.

“Structure and Properties of Melt spun PPS fibers,” International Fibers Society Conference, Bursa, Turkey, May 2010.

“Meltblown Ingeo Nonwovens for the Filtration Industry,” in Innovation takes Root 2010, Dallas, TX, April 2010.

“Opportunities and Challenges for Cotton in Technical Textiles,” Textile Association of India Annual Conference, Indore, India, January 2010.

“Nanofiber Nonwovens: Importance, Properties, Productions Technologies and Applications,” Beltwide Conference, New Orleans, LA January 7-9, 2010.

“Effect of Chemicals and Binders on the Durability of Flame Retardant Treated Cotton Nonwovens,” Beltwide Conference, New Orleans, LA, January 7-9, 2010.

“Highloft Flame Retardant Nonwovens for Cotton-based Compositions,” Beltwide Conference, New Orleans, LA, January 7-9, 2010.

“Structure and Properties of Melt Spun PPS Fibers” the Fiber Society Fall Conference, October 2009. (by P. Gulgunje)

“Structure and Properties of Meltblown Nanofiber Webs,” the Fiber Society Fall Conference, October 2009.

“Multifunctional Composites for Space Applications,” AATCC Symposium, October 2009.

“Compostable Nonwovens from PLA-Based Compositions,” INTC, Denver, CO, Sept 21-24, 2009. (by P. Gulgunje)

“Biodegradable Melt Blown Nonwoven Fabrics from Poly Lactic Acid,” INTC, Denver, CO, Sept 21-24, 2009. (by R. Green)

“Ultrafine Meltblown Fibers for Next Generation Filtration Applications,” Proceedings of the INTC, Denver, CO, Sept 21-24, 2009.

“Processing, Structure and Properties of Melt Blown Poly Lactic Acid Nonwoven Fabrics,” Fiber Society Spring Conference, Shanghai, China, May 2009.

“Nanoclay Incorporated Polypropylene Meltblown Webs,” International Conference on Nanostructured materials, Kottayam, India, April 2009.

“Spunlaced Cotton Blend Cosmetic Pads & Bed Sheets” Proceedings of the Needlepunch Conference, Myrtle Beach, SC, April 2009. (by coauthor D. V. Parikh)

“Synthesis of Nanophase Mn(VII) Oxide using Green Technology and Military Applications,” Gordon Conference on Chemical and Biological Terrorism Defense, Galveston, TX, January 18-23, 2009. (by coauthor R. Vempati)

“Approaches to Improving the Durability of Flame Retardant Treatments on Cotton Nonwovens,” Beltwide Conference, San Antonio, TX, Jan 2009.

“Green FR Cotton Barrier Nonwovens: A Progress Report,” Beltwide Conference, San Antonio, TX, Jan 2009. (by coauthor D. V. Parikh)

“Practical Approaches to Impart Flame Retardancy To Cotton-Based Nonwovens,” Proceedings of the 4th International Textile and Design Conference, Magic of Textiles, Dubrovnik, Croatia, October 3-5, 2008.

“Economic Approaches to Improve Flame Retardancy of Cotton Nonwovens,” INTC 2008 Conference Proceedings, Houston, TX, Sept 8-11, 2008.

“Incorporation of Nanophase Mn(VII)O Oxide into Nonwoven Fabrics,” INTC 2008 Conference Proceedings, Houston, TX, Sept 8-11, 2008. (by coauthor R. Vempati)

“Disposability to Sustainability, Evolution of Nonwovens: Challenges and Opportunities in India” ATNT2008 Conference, Coimbatore, India, July 14-16, 2008.

“Development of Flame Retardant (FR) Nonwovens from Cotton-based Compositions,” Clemson University Nonwovens Conference, Greenville, SC, June 10-11, 2008.

“Morphology and Mechanical Properties of Natural Nanoclay Reinforced PET and Nylon 6 Fibers,” the Fiber Society Conference, Mulhouse, France, May 13-15, 2008.

“New Approaches to Designing and Developing Biodegradable Nonwovens,” conference on Future of Sustainable Nonwoven Products, Orlando, FL, April 28-30, 2008.

“Cost Effective Approaches to Impart Flame Resistance to Cotton nonwovens,” Beltwide Conference, Nashville, TN, January 8-11, 2008.

“Functionalized Cotton-Based Nonwovens through the Incorporation of Nanophase Materials,” Beltwide Conference, Nashville, TN January 8-11, 2008.

“Multifunctional Nonwoven Fabrics with Nanophase Particles,” Conference on Future of Medical Nonwovens, Atlanta, GA, Dec. 5-6, 2007.

“New Approaches to Improving Flame Retardancy in Cotton Nonwovens,” AATCC Conference, Charleston, SC, 2007.

“Flame Retardant (FR) Nonwovens from Cotton-Based Compositions,” INTC '07, Atlanta, GA Sept 24-26, 2007.

“Nonwoven Fabrics with Enhanced Performance and Functionality Using Nanotechnology,” ATNT Conference, Coimbatore, India June 2007.

“Cotton-Based Flame Retardant Nonwovens,” Fiber Society Conference, Greenville, SC, May 23-25, 2007. (poster by M. Kamath)

“Effect of Nanoclay reinforcement on Polymer Structure and Properties,” Fiber Society Conference, Greenville, SC, May 23-25, 2007. (poster by R. Hegde)

“Structure and Properties of Elastomeric Spunbonded Nonwovens,” Fiber Society Conference, Greenville, SC, May 23-25, 2007. (poster by P. Gulgunje)

“Production and Performance of Biodegradable Nonwovens,” Sustainability Conference, Orlando, FL, March 2007.

“Nanophase Manganese Oxide Coated Nonwoven Applications,” Beltwide Conference, New Orleans, January 2007. (by R. Vempati)

“Nanoclay Reinforced Fibers and Nonwovens,” Proceedings of the AATCC Conference, Atlanta, GA, October 2006.

“Composite Material Fabrication and Testing for Galactic Radiation Shielding,” Fiber Society Fall Conference, Knoxville, TN, October 10-12, 2006.

“Structure and Properties of Nanoclay Reinforced Polypropylene Fibers,” Fiber Society Fall Conference, Knoxville, TN, October 10-12, 2006. (poster by student, M. Kamath)

“Structure and Properties of Latex Coated Nonwovens,” Fiber Society Fall Conference, Knoxville, TN, October 10-12, 2006. (poster by student, P. Gulgunje)

“Thermal Bonding of Polypropylene Films and Fibers,” Fiber Society Fall Conference, Knoxville, TN, October 10-12, 2006. (poster by student, R. Hegde).

“Nanophase Mn (VII) Oxide (NM7O) and Nanophase Mn(III) Oxide (NM3O) Incorporated Nonwovens,” Proceedings of the INTC’06, Houston, TX, Sept 25-28, 2006.

“Thermally Bonding of Bicomponent Fibers,” Proceedings of the INTC’06, Houston, TX, Sept 25-28, 2006.

“Thermal Analysis of Nanoclay Reinforced Polyolefins,” 34<sup>th</sup> NATAS Conference, Bowling Green, KY, August 6-9, 2006.

“Thermally Bonded Fiber Assemblies: Understanding the Bonding Behavior of Different Polymers,” Proceedings of the Fiber Society Conference, Seoul, Korea, May 30-June 3, 2006.

“Nanophase Mn (VII) Oxide Incorporated Nonwovens as Active Protective Fabrics from Chemical Warfare Agents (CWAs) and Toxic Industrial Chemicals (TICs),” Proceedings of TANCON 06, Knoxville, TN, April 18-20, 2006.

“Processing and Properties of Natural Fiber-Based Composites for Automotives,” TANCON 06, Knoxville, TN, April 18-20, 2006. (poster by M. Kamath)

“Influence of Nanoclay on Structure and Properties of Polypropylene Fibers and Nonwovens,” TANCON 06, Knoxville, TN, April 18-20, 2006. (poster by M. Kamath & R. Hegde)

“Structure and Properties of Thermal Bonded Nonwovens,” TANCON 06, Knoxville, TN, April 18-20, 2006. (poster by R. Hegde)

“Processing and Evaluation of Coated Nonwovens,” TANCON 06, Knoxville, TN, April 18-20, 2006. (poster by P. Gulgunje)

“Cotton Nonwovens for Automobiles,” Proceedings of the Beltwide Conference, San Antonio, January, 2006.

“Biodegradable/Compostable Composites from Ligno-Cellulosic Fibers,” FAO/ESCORENA International Conference, Port Elizabeth, South Africa, October 23-27, 2005.

“Recent Advances in Polymer Laid Nonwovens,” Proceedings of the Nonwovens Conference, IIT Delhi, India, October 14, 15, 2005.

“Biodegradable/Compostable Composites from Ligno-Cellulosic Fibers for Automotive Applications,” SAE Proceedings, October 2005.

“Nanoclay Reinforced Polypropylene Fibers and Fabrics,” Proceedings of the EUPOC, Lake Garda, Italy, May-June 2005.

“Influence of Nanoclay on Polypropylene Fibers and Fabrics,” Proceedings of the Fiber Society Conf. St. Gallen, Switzerland, May 2005.

“Structure and Properties of Natural Fiber Composites with Fully Biodegradable Compositions,” GPEC Conference, Atlanta, GA, Feb. 2005. (by M. Kamath)

“Overview of Cotton-Based Nonwovens,” Beltwide Conference Proceedings, New Orleans, LA, January 2005.

“Structure and Properties of Thermally Bonded Cotton-Based Nonwovens,” Fiber Society Conference, St. Louis, MO, May 17-19, 2004.

“Polymer Laid Nonwovens: Recent Advances and Future Prospects,” HPTEX-2004 Conference, Coimbatore, India, July 2004.

“Structure and Properties of Cotton-Based Biodegradable Nonwovens,” SIENTEX Conference, Natal, Brazil, Sept. 2004.

“Cotton Fiber Nonwovens for Automotive Composites,” INTC’04, Toronto, Canada, Sept. 2004.

“Recent developments and Future Trends in Spunbond and Meltblown Nonwovens,” The Fibers Conference. Greenville, SC, Sept. 2004.

“Biodegradable Composites from Lignocellulosic Fibers and Thermoplastic Binders,” Fiber Society Fall Conference, Ithaca, NY, October 10-12, 2004.

“Cellulosic Nonwoven-Based Composites,” 13<sup>th</sup> Annual TANDEC Conf. Knoxville, TN, Nov. 2004.

“Cotton-based Composites for Automotive Applications,” GPEC Conference, Detroit, MI, Feb. 2004

“Preparation and Properties of Cotton-Eastar Biodegradable Compostable Nonwovens,” Sixth Beltwide Nonwovens Conference, 2003.

“Biodegradable Nonwovens from Cotton-Based Compositions,” INTC’03, Baltimore MD, Sept 2003.

“Recent Advances in Electrospun nanofibers,” The Materials Society, Warrendale, PA , 2003.

“Bond Structure and the Properties of Spunbonded Fabrics,” TANDEC Conference Knoxville, TN, 2003.

“Structure and Properties of Nonwoven Fabrics for Coating Applications,” TAPPI, 2002 PLACE Conference, Boston, Sept. 2002.

“Effect of Bonding Variables in Thermal Bonding of PP Nonwovens,” INTC 2002 Conference, Sept. 2002.

“Spunbond Nonwoven Fabrics with Improved Properties,” 12<sup>th</sup> TANDEC Conference, Nov. 2002.

“Role of Binder Fibers in Cotton Nonwovens,” Beltwide Cotton Conferences, Jan. 2002.

“Biodegradable Composites made of PVA and Natural Fibers,” 11<sup>th</sup> TANDEC Conference, Nov. 8-10, 2001.

“Spunbond Nonwoven Fabrics with Improved Tensile Properties,” IFAI Technical Forum, Nashville TN, Oct. 2001.

“Spunbonding Studies with Propylene Polymers,” INTC 2001, Sept. 2001.

“Biodegradable Nonwovens from Cotton-Based Compositions,” Beltwide Conference, Jan. 2001.

"Nanofiber-Based Nonwoven Composites," 10<sup>th</sup> TANDEC Conference, Nov. 8-10, 2000.

"Spunbond Nonwovens from a Metallocene-Based Propylene Polymer," 10<sup>th</sup> TANDEC Conference, Nov. 8-10, 2000.

"Determination of the Processing History of PP Fibers by Thermal Analysis," 29<sup>th</sup> NATAS Conference, Orlando, FL, Oct. 4-6, 2000.

"Advances in the Thermal Bonding of Cotton/Cellulose Acetate Nonwovens of Untreated and Aqueous Pretreated Webs," 2<sup>nd</sup> International Conference on Metrology in Textile Engineering, Lodz, Poland, Nov. 23-24, 2000.

"Structure and Properties of PP Polymers in a Spunbonding Process," 29<sup>th</sup> NATAS Conference, Orlando, FL, Oct. 4-6, 2000.

"Implications of Fiber Morphology on the Structure and Properties of Thermally Bonded Polypropylene Nonwovens, INTC2000, Sept. 2000.

"Characterization of Cotton/Cellulose Acetate Nonwovens of Untreated and Aqueous Pretreated Webs Prior to Thermal Bonding," INTC.2000, Sept. 2000.

"Optimization of Processing Conditions for a PP Homopolymer in a Reicofil Spunbonding Process," INTC'2000, Sept. 2000.

"Development of Structure and Properties in Spunbond and Meltblown Nonwovens," Clemson PP Conference, Clemson, SC, Sept. 13-14, 2000.

"Structure and Properties of Spunbond Nonwovens Produced from Polypropylene Polymers," PP World Congress, Huddersfield, UK, July 2000.

"Spunbonded Nonwovens from Polyolefins," 2nd Annual APA Technical Conference, Atlanta, GA, June 1-2, 2000.

"Extruded Continuous Filament Nonwovens," International PPS Conference, Bangkok, Thailand, 1999.

"Process and Property Optimization in a Spunbonding Process," The 9<sup>th</sup> Annual TANDEC Conference, Knoxville, TN, 1999.

"Processing and Properties of Cotton-Based Nonwovens," The 9th Annual TANDEC Conference, Knoxville, TN, 1999.

"Fracture Mechanisms of Spunbonded Fabrics," The Fiber Society Fall Conference, Clemson, SC, Oct. 21, 1999.

"Process and Property Optimization in a Spunbonding Process," The Fiber Society Fall Conference, Clemson, SC, Oct. 21, 1999.

"Structure and properties of PP Polymers in a Spunbonding Process," The Fiber Society Fall Conference, Clemson, SC, Oct. 21, 1999.



“Nonwovens from Cotton/Cellulose Acetate Blends,” The 1999 INDA-TEC Conference, Atlanta, GA, 1999.

“Thermal Properties of Elastic Fibers,” 27th NATAS Conference, Savannah, GA, 1999.

“Changes In Structure and Properties of PP Fibers During Thermal Bonding,” 27th NATAS Conference, Savannah, GA, 1999.

“Shrink Resistant Melt-Blown PET Nonwovens,” The 1998 TANDEC Conference, Knoxville, TN, 1998.

"Production of Hollow Fibers from an Imide Copolymer," The Material Society, Annual Conference, Chicago, IL, 1998.

"Thermal Calendering and Its Effects on Bonded Fabrics" Twenty-Sixth NATAS Conference, Cleveland, OH, 1998.

"Hollow Fibers from A High Temperature Imide Copolymer" Twenty-Sixth NATAS Conference, Cleveland, OH, 1998.

"Structure Development in Spunbond Meltblown Fibers from Recycled Polypropylene," Clemson University Polypropylene Technology Conference, Aug. 1998.

"Evaluation of Spandex and Covered Yarns," The Fiber Society Conference, Asheville, NC, July 5-11, 1998.

"Effects of Process Conditions in Meltblowing of Polypropylene," The Fiber Society Conference, Asheville, NC, July 5-11, 1998.

"Extruded Continuous Filament Nonwovens: Advances in Scientific Aspects," The Fiber Society Conference, Asheville, NC, July 5-11, 1998.

“Dimensional Stability of Melt-Blown Polyester Nonwovens,” The 1998 TAPPI Nonwovens Conference, 29-36, 1998.

"Effect of Solvent Pretreatment on Cotton/Cellulose Acetate Nonwovens," The Fiber Society Fall Technical Conference, Knoxville, TN, Oct. 1997.

"Hollow Fibers From A Polyimide Copolymer," The Fiber Society Fall Technical Conference, Knoxville, TN, Oct. 1997.

"Carbon Fibers from a Polyvinyl Alcohol-Based Precursor," The Fiber Society Fall Technical Conference, Knoxville, TN, Oct. 1997.

"Carbon Fibers from A Polyimide-Based Precursor," Gordon Conference on Fiber Science Poster Paper, New London, NH, July 5-11, 1997.

“Carbon Fibers from a Partially Oriented Polyvinyl Alcohol Fiber,” The 23rd Biennial Conference in Carbon, Vol. II, 422-423, July 1997.

“Conversion of a Co-Polyimide Fiber into Carbon Fiber,” The 23rd Biennial Conference in Carbon, Vol. II, 406-407, July 1997.

"Processing of Recycled Polymers/Fibers into Meltblown and Spunbonded Nonwovens," 2nd Annual Conference on Recycling of Fibrous Textile & Carpet Waste, May 19-21, 1997.

“Evolution of Structure and Properties of Polypropylene Polymers in a Spunbonding Process,” Joint Conference on Fibers & Yarns, Textile Institute, Dec. 1996.

“Structure and Property Characterization of Spunbonded Filaments and Webs Using Thermal Analysis,” 1996 TANDEC Conference, Knoxville, TN, 1996. (by coauthor D. Zhang)

“Processing and Physical Properties of Cellulosic Nonwovens from Blends of Cotton and Cellulose Acetate,” 1996 TANDEC Conference, Knoxville, TN, 1996. (by coauthor K. E. Duckett).

“Processing and Physical Properties of Cellulosic Nonwovens,” Metrology in Textile Engineering. Conference in Poland, Sept. 1996. (by coauthor K. E. Duckett).

“Thermal Characterization of PP Homopolymer and Copolymer Fibers in a Spunbonding Process,” 11th ICTAC, Philadelphia, Aug. 12-16, 1996.

“Thermal Properties of a Polyimide Fiber,” 11th ICTAC, Philadelphia, Aug. 12-16, 1996.

“Nonwoven Textiles for the Manufacture of Composites,” ASME Winter Annual Meeting, San Francisco, CA, Nov. 12-17, 1995.

“Performance of Polyolefin Polymers in Spunbond Applications,” Clemson University Polypropylene Conference, Clemson, SC Aug. 23-24, 1995.

“Conversion of Recycled Polymers into Melt Blown Nonwovens,” The Textile Institute 76th World Conference, Istanbul, Turkey, 21-24, May 1995.

“Tensile and Biodegradable Properties of Cotton/Cellulose Acetate Nonwovens,” The Fiber Society 1995 Spring Conference, Raleigh, NC, May 9-11, 1995. (by coauthor H. Suh)

“Influence of the Structure of PP Fibers on the Thermal Bonding and the Fabric Properties in Spunbonding,” The Fiber Society 1995 Spring Conference, Raleigh, NC, May 9-11, 1995. (by coauthor D. Zhang)

“Thermally Stable PET Melt Blown Nonwovens,” The Fiber Society 1995 Spring Conference, Raleigh, NC, May 9-11, 1995.

“Structure and Properties Development in a Spunbonding Process,” The Fiber Society 1995 Spring Conference, Raleigh, NC, May 9-11, 1995.

“Tensile Behavior of Solvent Pre-Treated and Thermally Bonded Cotton/Cellulose Acetate Nonwovens,” 1995 Beltwide Cotton Conferences, San Antonio, TX, Jan 1995. (by coauthor K. E. Duckett)

“Compostable Nonwovens from Cotton/Cellulose Acetate Blends,” 1995 TAPPI Nonwovens Conference, St. Petersburg, FL, Mar. 1995. (by coauthor K. E. Duckett)

“Changes in Structure and Properties of the Filaments in a Spunbonding Process,” TANDEC Conference, Nov. 1994.

“Dimensionally Stable Melt Blown PET Fabrics,” Poster Presentation at Textile Institute’s 75th Anniversary Conference, Atlanta, GA, Sept. 1994. (by coauthor V. Narayanan)

“Thermally Stable Melt Blown PET Fabrics,” Poster Presentation at INDA Fundamental Conference, Auburn AL, July 26-28, 1994. (by coauthor V. Narayanan)

“Melt Blown Nonwovens from Recycled PET,” Fiber Society’s Spring Technical Conference, Annapolis, MD, May 16-18, 1994.

"Three Dimensional Textiles for Composites," Materials Week '93, Pittsburgh, PA, Oct. 17-21, 1993.

"Influence of Processing Variables on Structure and Properties of Polyethylene-Based Carbon Fibers," Materials Week '93, Pittsburgh, PA, Oct. 17-21, 1993.

"Crystallization Kinetics of PET with Different Nucleating Agents," 22nd NATAS Conference, Denver, CO, Sept. 19-22, 1993.

"Thermal Effects on Melt Blown PET/PBT Nonwovens," 22nd NATAS Conference, Denver, CO, Sept. 19-22, 1993.

"Changes in Structure and Properties of Acrylic Fibers during Stabilization," 22nd NATAS Conference, Denver, CO, Sept. 19-22, 1993.

"Structure and Properties of Melt Blown Nonwovens from PBT," Poster Presentation at the INDA Fundamental Conference, Clemson, SC, July 20-21, 1993. (by coauthor V. Narayanan)

"Carbon Fibers from Polyethylene-Based Precursors," Poster Presentation at the Gordon Research Conference in Fiber Science, New London, NH, July 11-16, 1993.

"Failure Mechanisms of Melt Blown Polyester Nonwovens," Poster Presentation at the Gordon Research Conference in Fiber Science, New London, NH, July 11-16, 1993. (by coauthor V. Narayanan)

"Change in Structure and Morphology During the Conversion of Polyethylene Fibers into Carbon Fibers," 22nd Biennial Conference in Carbon, Buffalo, NY, June 13-18, 1993.

"Conversion of a Highly-Ordered Polyethylene Fiber into Carbon Fiber," TMS Symposium, Chicago, IL, Nov. 1-5, 1992.

"Rapid Stabilization of Acrylic Fibers for High Performance Carbon Fibers," TMS Symposium, Chicago, IL, Nov. 1-5, 1992.

"Thermorheological Investigation of Mixed Recycled Plastics," RETEC, Atlanta, GA, Oct. 5-7, 1992.

"Thermal Analysis of Sulfonated Spectra Fibers," 21st NATAS Conference, Atlanta, GA, Sept. 13-16, 1992.

"Processability of Recycled Plastics for Melt Blowing into Nonwovens," ACS National Meeting, Washington, DC, Aug. 23-28, 1992.

"Accelerated Stabilization of Acrylic Fibers Using Ammonia," ACS National Meeting, Washington, DC, Aug. 23-28, 1992.

"Melt Blown Nonwovens from Polybutylene Terephthalate," TAPPI Nonwovens Conference, Marco Island, FL, May 10-14, 1992.

"Rapid Stabilization of PAN-Based Precursors for Carbon Fibers Using Ammonia," Poster Paper at the Gordon Research Conferences (Fiber Science), New London, NH, July 1991.

"Melt Blown Nonwovens from Recycled Polymers," Poster Paper at the Gordon Research Conferences (Fiber Science), New London, NH, July 1991.

"Role of Ammonia in the Stabilization of Acrylic Precursors for Carbon Fibers," 20th Biennial Conf. on Carbon, UCSB, Santa Barbara, CA, June 24-28, 1991.

### **Other Invited Presentations:**

"Advances in Meltblown Nonwoven and Personal Protective Fabrics: Learnings from the Pandemic," College of Engineering, UGA, March 14 (2022).

"Advances in Melt Blown Nonwovens and Personal Protective Fabrics," TMI Graduate Seminar Series, UGA, December 2021.

“Overview of Georgia Textile Industry and UGA Textile Program,” Virtual Event: Georgia’s Role in the Textile Industry: Research & Company Perspectives, USA-Germany Collaboration, June 23, 2021

“Nonwovens in Filtration: An Overview on Nonwoven Products and Process Technologies,” Waterloo Filtration Institute, Virtual March 23, 2021

“Melt Blown Nonwovens and Face Masks for Covid19 and Beyond,” TMI Seminar Series, UGA, September 2020.

“An Overview on Nonwoven Products and Process Technologies,” Waterloo Filtration Institute, Virtual May 12, 2020.

“Hospital Air Filtration and Facemasks to fight Covid 19,” Waterloo Filtration Institute, Webinar, April 23, 2020.

“Nonwovens Research at UTNRL and Role of COE.” Zirve University, Gaziantep, Turkey, June 16, 2014

“Meltblown Nanofiber Webs: Processing, Structure And Properties.” Pamukkale University, Denezli, Turkey, May 21, 2014

“Meltblown Nanofiber Webs: Processing, Structure And Properties,” University of New south Wales, Sydney, Australia, May 16, 2013.

“Nonwoven-based Compostable Automotive Composites,” International R&D Project Brokerage Event, Bursa, Turkey, April, 2013.

“Durable Flame Retardant Treatments for Cotton-based Nonwovens,” International R&D Project Brokerage Event, Bursa, Turkey, April, 2013.

“Meltblown Nanofiber Nonwovens from Sustainable Polymers,” Invited Seminar at Cornell University, Ithaca, NY, Oct. 2012.

“Meltblown Nonwovens and Future Directions for Research in Filter Media Development,” Donaldson Company, May 2012.

“Recent Advances in Melt Blown Nanofibers,” Reliance Industries, Mumbai, India, August 2011.

“Role of Centers of Excellence in the Growth of Technical Textiles,” FICCI Forum, New Delhi, January 2011.

“Meltblown Micro- and Nano-fiber Nonwovens” at 3M, St. Paul MN, June 2010.

“Meltblown Microfiber Nonwovens,” Americhem Corporation, Cleveland, OH, May 2010

“Recent Advances in Nonwovens Research,” Berhampur Engineering College, Kolkata, India, January 2010.

“Meltblown Micro- and Nano-fiber Nonwovens,” Reliance Industries, Mumbai, India, Jan. 2010.

“Effect of Nanoclay Structure and Properties of Polymer Films, Fibers and Nonwovens,” Invited Seminar, Clemson University, Mar. 2007.

“Effect of Nanoclay Structure and Properties of Polymer Films, Fibers and Nonwovens,” Invited Seminar, Cornell University, Mar.15, 2007.

Gave five lectures on different aspects of nonwovens to faculty and graduate students at IIT Delhi, India, a premier institution for Textile Education and Research, Oct. 2005.

Gave a half day seminar on thermal bonded nonwovens at Sunoco Chemicals, Dec. 2004.

Gave a lecture on Textile Education in the US to Textile faculty and students at the Bannari Amman Institute, Satyamangalam, India, July 2004.

Gave a seminar on processing and properties of cotton-based nonwovens at the USDA Research laboratory, New Orleans, July 2001.

“Polypropylene Polymers in Spunbond Nonwovens,” Invited Seminar at Equistar Chemical Company, Cincinnati, OH, Apr. 2001.

Gave two lectures on high performance fibers to students at the Textile Institute, Ichalkaranji, India on, Dec. 1999.

Gave a Seminar on Nonwoven Fabrics- Processing Properties and Applications to the faculty and students at Kasetsart University, Bangkok, Thailand, Dec. 1999.

Gave two lectures to senior graduate students at the Textile Institute, Ichalkaranji, India on Nonwovens, Nov. 1996.

“Spunbond and Meltblown Nonwovens,” Invited lecture at IIT Delhi, India, Dec. 1996.

“Processing, Structure and Properties of Nonwovens,” invited seminar at the Victoria Jubilee Technical Institute, Mumbai, India, Feb. 1994.