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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

2022-Current	"Materials for Next Generation PPF," NIST through AFFOA, \$460,000
2020-Current	"Advanced Personal Protective Fabrics," AFFOA/DoD. \$1,100,000
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 ₂ 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," Beiersdorf 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. Islam and G. Bhat, “A model for predicting thermal conductivity of porous composite materials,” *Heat Mass Transfer* (2023). <https://doi.org/10.1007/s00231-023-03380-w>

S. Islam, G. S. Bhat, and P. Sikdar, “Thermal and Acoustic Performance Evaluation of 3D Printable PLA Materials, *Journal of Building Engineering*, 16 (2023).
<https://doi.org/10.1016/j.jobbe.2023.105979>

S. Wu and G. S. Bhat, “Inorganic Fullerene-like Tungsten Disulfide/Waterborne Polyurethane Reinforced Spectra Composites with Improved Mechanical Properties and Energy Absorption,” *Results in Materials*, 18 (2023). <https://doi.org/10.1016/j.rinma.2023.100389>

D. Greeley, J. Gritton, R. Minneci, A. Plymill, and G. Bhat, “Structure and Properties of PLA Nanocomposite Feedstock for Additive Manufacturing,” *European Journal of Applied Sciences*, 10 (5) 575-587 (2022). <https://doi.org/10.14738/aivp.105.13312>

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. Islam¹, 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*, 2 (6) 1896-1926 (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/Fe₃O₄-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 Fe₃O₄/Cu₃(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. Bhawe, 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 Fe₃O₄ 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. Naskar⁴, 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).

Books

Structure and Properties of High Performance Fibers, Edited by G. Bhat, Woodhead Publishing Series in Textiles: No. 187, Elsevier (2016) ISBN: 978-0-08-100550-7

Parts of books:

G. Bhat, S. Malkan, and S. Islam, "Polymer-laid web formation," in *Handbook of nonwovens*, S. Russel (Eds), New York, NY: CRC Press, Ch 6, pp 217-278 (2022).
<https://doi.org/10.1016/B978-0-12-818912-2.00001-X>

K. Akato and G. Bhat, "High Performance Fibers from Aramid Polymers," in Structure and Properties of High Performance Fibers, Edited by G. Bhat, Woodhead Publishing, Cambridge, UK (2016) pp 245-266.

N. Hiremath and G. Bhat, "High Performance Carbon nanofibers and Nanotubes," in Structure and Properties of High Performance Fibers, Edited by G. Bhat, Woodhead Publishing, Cambridge, UK (2016) pp 79-110.

G. S. Bhat and V. Kandagor, "Polymer and Polymeric Fiber Production," in Advances in Filament and Yarn Spinning of Polymers and Textiles, Ed. D. Zhang, Woodhead Publishing, Cambridge, UK, (2014)

G. S. Bhat, "Flame Retardant Nonwovens," in Flame Retardant Textiles, Ed. F. S. Kilinc-Balci, Woodhead Publishing, Cambridge, UK, pp322-348 (2013).

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N. Hoda, F. Mert, G. S. Bhat, H. G. Atasagun and P. Sikdar, "Effect of Process Parameters on Air Permeability and Hydrostatic Pressure of Polypropylene Nonwovens Produced by Melt Blowing," Proceedings of the 7th International Textile Congress, Izmir ,Turkey, October 10-12, 2018.

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G. S. Bhat, "Recent Advances in Nanofiber Technologies and Multifunctionality for Next Generation Fabrics," Proceedings of the TEXFO 2017 – Global Textile and Vision Forum, Daegu, S. Korea, March 8-10, 2017.

G. Bhat, "Meltblown Nanofiber Webs for Filter Media and other Applications: Recent Developments and Future Prospects," International Symposium on High Temperature bag Filter Technology, Shanghai, China, October 11-12, 2016.

G. Bhat, Y. Yesil and V. Shah, "Recent Advances in Polyolefin Meltblown Nonwovens," Proceedings of the SPE Polyolefins Conference, Houston, TX February 20-23, 2016.

G. Bhat, "Meltblown Submicron Fibers: Recent Advances and Future Prospects," Proceedings of the INDA RISE Conference, Miami FL, February 11-14, 2015.

V. K. Srivastava, R. A. Quinlan, A. L. Agapov, K. M. Nelson, A. P. Sokolov, G. S. Bhat, and J. W. Mays. "Simple macroscopic tailoring of 2D layered hexagonal materials using redox-liquid exfoliation." In *Abstracts of Papers of The American Chemical Society*, Vol. 247. 1155 16th St, NW, Washington, Dc 20036 USA: Amer Chemical Soc, 2014.

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R. Vempati and G. S. Bhat, "Nanophase Mn (VII) oxide (NM7O) and Nanophase Mn (III) Oxide (NM3O) Incorporated Nonwovens," U.S. Patent 8,163,036, Issued April 21, 2012.

G. S. Bhat, V. Narayanan and L. C. Wadsworth, "Dimensionally Stable Polyester Films, Fibers, Yarns and Melt Blown Nonwovens," U. S. Patent 5,753,736 (issued May 19, 1998).

K. E. Duckett, G. S. Bhat and Hagen Suh, "Compostable/Biodegradable Nonwovens," U.S. Patent 5,783,505 (issued July 21, 1998).

L. H. Peebles, Jr., A. S. Abhiraman and G. S. Bhat, "Method for Stabilization of PAN-Based Carbon Fibers," *U. S. Statutory Invention Registration* - H1052 (May 5, 1992).

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," Techtextile North America, Atlanta, GA, May 17-19, 2022 (poster by Talon Shaw).

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

"Performance Properties of Water Based Polyurethane Coated Hydroentangled Cotton Nonwovens," Techtextile 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).

“Environmentally Friendly Thermal and Acoustic Insulation Materials from Recycled Fabrics, Webinar on Recycling and Waste Management, London – Virtual Conf. Nov.9-10 (2020).

“Processing and Performance of Value-Added Products from Recycled Textiles,” AFFOA Virtual Event, MIT, Boston, Virtual, October 7-8 (2020).

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

“Advances in Melt Blown Technology for Submicron Fibers, and its importance in the Covid19 Crisis,” International Conference on Recent Trends in Textile and Fashion, Jalandhar, India Virtual, June 22-25 (2020)

“Recent Developments in Nanofiber Technologies and Multifunctionality for Next-Generation Textile Materials,” G. Bhat, In *The 15th Asian Textile Conference (ATC15)*, Shaoxing/ Hangzhou, China (2019) Keynote Speaker.

“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.

“Development Of Sustainable Building Insulation Materials From Textile Waste,” Islam, S. and Bhat, G., Poster session presented at the meeting of 4th International Symposium on Materials from Renewables (2019) (by S. Islam).

“Mechanical and Dispersible Properties of Some Commercial Flushable Nonwovens,” Atasagun, H., Wu, S., & Bhat, G. Poster session presented at the meeting of 4th International Symposium on Materials from Renewables (2019) (by S. Wu).

“Effect of Processing Conditions on the Structure and Properties of Melt Blown Polylactic Acid (PLS) Nonwovens,” Azari, H., and Bhat, G. Poster session presented at the meeting of AATCC International Conference, Fort Worth, TX (2019) (by H. Azari).

“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).

“Structure and Properties of Polypropylene Graphene Composite Filaments,” Azari, H., Hiremath, N. S., Bhat, S., and Bhat, G., Poster session presented at the meeting of Techtextil 2019, Raleigh, NC (by H. Azari).

“Barrier and Mechanical Properties of Composite Nonwovens from Cotton Fibers with Elastomeric Webs,” Sikdar, P. P., Hinchliff, D., Condon, B., and Bhat, G., Poster session presented at the meeting of Techtextile 2019, Raleigh, NC (by P. Sikdar).

“Environmentally-Friendly Acoustic Insulation Materials from Post-Consumer Recycled Fabrics,” Islam, S., Sikdar, P. P., El Messiry, M., Seylar, J., and Bhat, G., Poster session presented at the meeting of Techtextile 2019, Raleigh, NC ((by S. Islam).

“Preliminary Studies on Development of Lightweight Ballistic Materials: Effect of Coating Nonwovens,” Wu, S., and Bhat, G., Poster session presented at the meeting of Techtextile 2019, Raleigh, NC (by S. Wu).

“Nanofiber Nonwovens from A Biodegradable Polymer By Meltblowing,” G. Bhat and H. Azari, Nanotech 2018, Valencia, Spain, December 3-5, 2018.

“Effect of Process Parameters On Air Permeability And Hydrostatic Pressure Of Polypropylene Nonwovens Produced By Melt Blowing,” N. Hoda, P. Sikdar, G. Bhat, 7th International Technical Textiles Congress, Izmir, Turkey, October 10-12, 2018 (by N. Hoda).

“Evaluation Of Mechanical And Dispersible Properties Of Flushable Nonwovens,” H. Atasagun and G. Bhat, 7th International Technical Textiles Congress, Izmir, Turkey, October 10-12, 2018 (by H. Atasagun).

“Influence of Chemical Pretreatments on Processing, Structure and Properties of Rayon-Based Carbon Fibers,” Fiber Society Conference, Tokyo, Japan, June 2018.

“Recent Advances in Meltblown Nanofiber Nonwovens,” Nanofiber Symposium 2018, Tokyo, Japan June 2018.

“Processing, Structure and Properties of Melt Blown Nonwovens from a Sustainable Polymer,” Techtextile Symposium, Atlanta, GA, May 2018. (by Homeira Azari)

“Mechanical and Dispersible Properties of Some Commercial Flushable Nonwovens,” Techtextile Symposium, Atlanta, GA, May 2018. (by Shuangyan Wu)

“Elastic Nonwovens Containing Cotton Fibers,” Techtextile Symposium, Atlanta, GA, May 2018. (by Partha Sikdar)

“Nanoparticle Reinforced Elastomeric Nonwoven-based Composites for Ballistic Protection,” Techtextile Symposium, Atlanta, GA, May 2018.

“Structure and Properties of Nanoparticle Reinforced Elastomeric Nonwoven-based Composites,” TAPPI NET Conference, Charlotte, NC April 2018.

“Raising the Bar: Can IoT improve Fitness and Performance,” In *IoT Tech Expo North America*. Santa Clara, CA, November 2017.

“Nanophase Manganese Oxide-Violet and Nanophase Carbonate Coated Fabrics for Chem-Bio Suits and other Military Applications,” In *CBD S&T Conference*, Anaheim, CA, November 2017.

“Structure and Properties of Inorganic Fullerene Reinforced Elastomeric Nonwoven-based Composites,” In *the Fiber Society Fall Technical Conference*, Athens, GA November 2017

“Effect of Process Parameters on Fiber Diameters of Polypropylene Microfibers Produced by Melt Blowing in a Biax Line,” In *the Fiber Society Fall Technical Conference*, Athens, GA, November 2017.

“Structural and Mechanical Properties of Commercially Available Flushable Nonwovens,” Poster presented at *The Fiber Society Fall Technical Conference*, Athens, GA, November 2017. (presented by H. Atasgun)

“Sustainability in Carpet Industry: Challenges and Recent Developments,” Poster presented *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. Azari)

“Structure and Properties of Melt Blown Polyetherimide as High Temperature Filter Media,” in *ICTEYM Conference*. Stockholm, Sweden, July 2017

“Jute Fiber Nonwovens and Composites for Waste,” In *TEX India 2017*, Ahmedabad, India, June 2017.

“Sustainability in Electronic Textiles,” In *WEAR Conference*. San Francisco, CA, June 2017.

“Nonwovens Processes and Products: Recent Advances and Future Tends,” International Textile Fair – Preview in Daegu, Daegu, S. Korea, March 8-10, 2017.

“Recent Advances in Nanofiber Technologies and Multifunctionality for Next Generation Fabrics,” *TEXFO 2017 – Global Textile and Vision Forum*, Daegu, S. Korea, March 8-10, 2017.

“Nanofibers from the Meltblowing Process: Recent Developments and Future Opportunities,” Seoul National University, Seoul, S. Korea, March 7, 2017.

“Meltblown Nanofiber Webs for Filter Media and other Applications: Recent Developments and Future Prospects,” International Symposium on High Temperature bag Filter Technology, Shanghai, China, October 11-12, 2016.

“Development of Structure and Morphology in Meltblown Nanofiber Nonwovens,” NART2016 – Nanofiber Applications and Related Technologies, Raleigh, NC, Sept. 13-15, 2016.

“Compositional Analysis of Polymer Blends Using Differential Scanning Calorimetry and Thermogravimetric Analysis,” J. Seylar and G. Bhat, National Council for Undergraduate Research, Asheville, NC, April 7-9 2016 (presented by J. Seylar)

“Submicron Fiber Nonwovens from Ingeo® a Sustainable Polymer,” American Filtration Society Fall Conference, Franklin, TN, October 5-8, 2015. (presented by K. Akato)

“Activated Carbon from Recycled-Cotton Fibers for Filter Media Applications,” American Filtration Society Fall Conference, Franklin, TN, October 5-8, 2015. (presented by N. Hiremath)

“Structure and Properties of Nanoparticle Reinforced Nonwoven-based Composites,” Advanced Nano,” International Conference on Advanced Nanomaterials, Ottawa, Canada, August 10-12, 2015

“Commercially Feasible Production of Nanofiber Webs by Meltblowing,” Chemical and Biological Defense Science and Technology (CBD S&T) Conference, St. Louis, MO, May 12-14, 2015.

“Processing and Characterization of Nonwoven-Based Composites from Recycled Denim Fiber for Automotive Applications,” TAPPI NET Conference, Atlanta, GA, April 20-22, 2015.

“Effect of Processing Conditions on the Structure and Properties of Cellulosic Precursor-Based Carbon Fibers,” Carbon Fibers and Composites Workshop, Oak Ridge, TN April 16-17, 2015

“Structure and Properties of CNT Yarns,” Carbon Fibers and Composites Workshop, Oak Ridge, TN April 16-17, 2015 (by Nitilaksha Hiremath).

“Meltblown Submicron Fibers: Recent Advances and Future Prospects,” Proceedings of the INDA RISE Conference, Miami FL, February 11-14, 2015.

“Structure and Properties of Multifunctional Nanoparticle Reinforced Textile Materials and Composites,” Naval Future Conference, Washington, DC, January 4-5, 2015

“Meltblown Submicron Fiber Nonwovens: Recent Developments and Future Prospects,” Asia Africa Symposium 9, Hangzhou, China, November 24-26, 2014.

“Recent Developments in the Processing Melt Blown Nanofibers for Filter Media,” AFS Fall Conference, Chicago, IL, October 13-15, 2014.

“Meltblown Nanofiber Webs: Recent Developments and Future Prospects,” COST workshop on Electrospinning, Bilkent University, Ankara, Turkey, June 11-13, 2014.

“Coating of Membranes for Biomass Separation,” North American Membrane Society, Spring Meeting, Houston, TX, May 31- June 4, 2014. (by V. Kandagor)

“Nonwovens Process Tutorial,” TAPPI NET Conference, Nashville, TN, April 28-30, 2014.

"Antibacterial Nonwovens using Nanophase MN Oxide ," TAPPI NET Conference, Nashville, TN, April 28-30, 2014.

“Structure & Properties of Melt Blown Submicron Fiber Nonwovens from Polypropylene,” TAPPI NET Conference, Nashville, TN, April 28-30, 2014.

“Filtration Efficiency of Submicron Filters,” TAPPI NET Conference, Nashville, TN, April 28-30, 2014. (by S. Ramkumar).

“Processing Structure and Properties of Melt Blown Polyetherimide” TAPPI NET Conference, Nashville, TN, April 28-30, 2014. (by V. Kandagor)

"Effect of Quenching on the Structure and Properties of Melt Blown Polyurethane Nonwovens” TAPPI NET Conference, Nashville, TN, April 28-30, 2014. (by Yalcin Yesil).

“Meltblowing A Novel Approach to Produce Nanofibers,” TTRI Conference, Taipei, Taiwan, October 2013.

“Polymeric Coatings of Inorganic Membranes ,” North American Membrane Society Conference, Boise, ID, June 2013 (by V. Kandagor).

“Monolayer Polymeric Coatings to Enhance the Performance of Inorganic Membranes for Biomass Filtration,” AFS Conference Minneapolis, (MN) May 2013 (by V. Kandagor).

“Structure and Properties of Melt Blown Submicron Fiber Nonwovens,” the Fiber Society Conference, Geelong, Australia (May 2013).

“Submicron Fiber Nonwovens from a Sustainable Polymer for Filter Media,” AATCC Conference, Greenville, SC (April 2013).

Other Invited Presentations:

“Recent Advances in Melt Blown Nonwovens and Personal Protective Fabrics,” Department of Textile and Fiber Engineering, IIT Delhi, Dec 14, 2022

“Advances in Melt Blown Nonwovens and PPF,” Department of Textile Technology, NIT, Jalandhar, Nov. 30, 2022

“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.

PRIOR EXPERT WITNESS EXPERIENCE

1. *Kimberly-Clark Corp. v. Extrusion Grp.*, Civil Action File No. 1:18-cv-04754-SDG (N.D. Ga. Jul. 15, 2020).
2. *Precision Fabrics Grp., Inc. v. Tietex Int'l, Ltd.*, 367 F. Supp. 3d 487 (D.S.C. 2019).
3. *Stretchline Intellectual Props. Ltd. v. H&M Hennes & Mauritz LP*, CIVIL ACTION NO. 2:10-cv-371 (E.D. Va. Sep. 3, 2015)
4. *Alpha Pro Tech, Inc. v. VWR Int'l LLC*, CIVIL ACTION No. 12-1615 (E.D. Pa. Nov. 25, 2013).