

## Md Mazbah Uddin

310 Rogers Road, S211  
Athens, GA 30605, USA

+17063409713  
mdmazbah.uddin@uga.edu

### EDUCATION

#### **Ph.D. in Materials Science**

**May 2026**

University of Georgia (UGA), Athens, Georgia, USA  
Advisor: Professor Suraj Sharma & Sergiy Minko

#### **M.S. in Polymer, Fiber, and Textile sciences**

**Jul 2021**

Thesis: Co-axial yarn-based electrical nanogenerators of flexible metal threads  
Advisor: Professor Suraj Sharma & Sergiy Minko

#### **BS. in Textile Engineering**

**Apr 2018**

Bangladesh University of Textiles, Tejgaon, Dhaka, Bangladesh  
Advisor: Professor Hosne Ara Begum

### RESEARCH INTERESTS

- Textile sciences, polymeric materials, biomaterials, biobased packaging, nanomaterials, thin films and functional coating, nanocellulose, sustainability, green chemistry, and functional/responsive textiles

### PROFESSIONAL EXPERIENCE

#### **Graduate Research Assistant, UGA, Textiles, Merchandising, and Interiors (TMI), Jan 2022-Present**

- Developing bio-based biodegradable functional coatings with enhanced barrier and mechanical properties for paper packaging applications, 2022-2023, CB<sup>2</sup>/IUCRC/NSF
- ✓ Nanocellulosic hydrogel synthesis from different plant materials and its applications in paper packaging
- ✓ Biodegradable polymer-based emulsion synthesis and its applications in paper packaging
- Fibrous scaffolds for cell culture studies (independent research)
- ✓ PHB polymer-based fibrous scaffolds for biomedical applications

#### **Graduate Teaching Assistant, UGA, TMI, Aug 2021-Dec 2021**

- TXMI 3520 (Basic Textile Testing for End-Use Performance), Lab Instructor, Fall 2021
- FYO 1001: First-Year Odyssey Seminar (3D Printing and Design), Lab Instructor, 2020-Present

#### **Graduate Fellow Research Assistant, UGA, TMI, UGA, Aug 2019-Jul 2021**

- Co-axial yarn-based electrical nanogenerators of flexible metal threads (energy harvesting textiles), TenCate Geosynthetics
- ✓ Melt extrusion coating-based electrical energy generating triboelectric yarns
- ✓ Nanofiber and thin film coating techniques and their application in developing energy-generating piezoelectric yarns

#### **Trainee Merchandiser, Ha-meem Group, Bangladesh, Feb 2018-Jun 2019**

- My responsibilities were materials sourcing, product development, supply chain and resource management, overwatch production, and making sure of product shipment. I have worked in the PVH department of Ha-meem Group, which handles the manufacturing of readymade woven garments for PVH Corp., a US clothing company

#### **Internship, Square Textiles Limited, Bangladesh, Jun 2017-Aug 2017**

- Understanding processes involved in a yarn manufacturing plant from administrative to final packaged product. However, the training emphasized more on various types of yarn production processes (ring, rotor, vortex, mélanges, core-spun, metallic, plied yarns, and so on), quality control, finishing, and R&D

### RESEARCH SKILLS

- Synthesis of polymeric films and fibers (spin coating, film applicator, film casting, nanofiber spinning, melt spinning, etc.), nanocellulosic materials synthesis, synthesis of polymeric emulsion, functional polymeric coatings, textile testing, and quality controls, performance evaluation of the paper and packaging materials, characterization of polymeric materials

### TECHNICAL & ANALYTICAL ACUMEN

- Universal Tester, DMA, XRD, FTIR, NMR, UV-Vis, DSC, TGA, SEM, TEM, Optical Microscopy, Ellipsometry, AFM, DLS, SLS, Rheometer, Textiles And Packaging Performance Testing, and So on.
- Data analysis: OriginLab, Microsoft Office, JMP, ImageJ, ANOVA
- Instrumentation of lab-scale machinery: Autodesk AutoCAD and 3D printing

### PEER-REVIEWED PUBLICATIONS

- J. Mater. Chem. A, 2023,11, 19244-19280. **Triboelectric nanogenerator assisted synthesis and detection of chemical compounds.** <https://doi.org/10.1039/D3TA03572G>
- Adv. Mater. Technol, 2023, 8, 23008022300802. **Triboelectric Nanogenerators for Marine Applications: Recent Advances in Energy Harvesting, Monitoring, and Self-Powered Equipment.** <https://doi.org/10.1002/admt.202300802>
- Taylor and Francis Group, 2022, Nanogenerators: Basics, Design Strategies, and Applications, **Chapter 10: Wearable Nanogenerators.** <https://dx.doi.org/10.1201/9781003187615-10>
- Materials Technology, 2022, VOL. 37, NO. 13, 2465–2479. **Melt coated flexible stainless-steel thread based co-axial triboelectric yarn nanogenerators.** <https://10.1080/10667857.2022.2038769>
- Smart Mater. Struct. 31 (2022) 035028 (15pp). **Highly flexible and conductive stainless-steel thread based piezoelectric coaxial yarn nanogenerators via solution coating and touch-spun nanofibers coating methods.** <https://10.1088/1361-665X/ac5015>
- Mater. Adv., 2021,2, 4532-4573. **Recent advances in the synthesis of smart hydrogels.** <https://doi.org/10.1039/D1MA00193K>

### AWARDS AND HONORS

- **Endsley-Peifer Student Research Award**, 2023, awarded by the College of Family and Consumer Sciences (FACS), UGA
- **Jones Anderson Family Scholarship**, 2022, awarded by the FACS, UGA
- **The Graduate School Doctoral Fellow Award**, 2021, awarded by the Graduate School of UGA
- **Travel Grant from Bangladesh-Sweden Trust Fund**, 2021, awarded by Bangladesh-Sweden Trust Fund
- **Georgia Impact Now Master's Fellows Program (GAIN)**, 2019, awarded by the Graduate School of UGA

### RESEARCH GRANTS

- \$65557, Bio-Based Coatings for High-Performance Flexible Paper Packaging Application and Improved Understanding of Their Water Barrier Properties, Center for Bioplastics and Biocomposites, co-authored with Suraj Sharma and Sudhagar Mani, 2023
- \$500, Application of Core (PLA)-Sheath (PHB) Nanofibrous Yarn as Implantable Medical Textiles, AATCC Foundation Student Research Support Grant, co-authored with Suraj Sharma, 2019

### LICENSED TECHNOLOGIES

- The following co-invented technologies are licensed to DNY, LLC, by the UGA Research Foundation:
- ✓ Hydrophobic nano cellulosic hydrogels and process of fabricating nanocellulose hydrogels from wood pulp and plant fibers; and sustainable and eco-friendly dyeing/coating of cotton textiles with nanocellulose-indigo gel, 2023
- ✓ Nanocellulose-based coatings for textile sizing application, 2023

### CONFERENCES AND PRESENTATIONS (BOLD DENOTES PRESENTING AUTHOR)

- **M. M. Uddin**, V.N. Mohakar, S. Mani and S. Sharma, "Preparation of Nanofibrillated Cellulose Hydrogels from Various Plant Materials", IBBC-PEERS (TAPPI), Nov 2023, Atlanta, Georgia, USA. Poster Presentation
- **M. M. Uddin**, V.N. Mohakar, S. Mani and S. Sharma, "Biodegradable Polymer Based Coatings for High-Performance Flexible Paper Packaging Application" The Fiber Society Conference, Oct 2023, Drexel University, Philadelphia, PA, USA. Poster Presentation
- **M. M. Uddin**, N. S. Yadavalli, T. D. Nguyen, S. Minko, and S. Sharma, "Melt coated flexible stainless-steel thread-based co-axial triboelectric yarn nanogenerators ", The Fiber Society Conference, Oct 2022, North Carolina State University, Raleigh, NC, USA. Oral presentation
- **M. M. Uddin**, B. Blevins, N. S. Yadavalli, T. D. Nguyen, S. Minko, and S. Sharma "Co-axial Yarn Based Electrical Nanogenerators of Flexible Metal Threads", Techtextil North America, May 2022, Georgia World Congress Center, Atlanta, GA, USA. Poster presentation
- **M. M. Uddin**, R. Saremi, and S. Sharma, "Application of Core-Sheath Nanofibrous Yarn as Implantable Medical Textiles", 4th International Symposium on Materials from Renewables (ISMR), Oct 2019, University of Georgia, USA. Poster Presentation

### CONTRIBUTED CONFERENCES AND PRESENTATIONS (BOLD DENOTES PRESENTING AUTHOR)

- **V.N. Mohakar**, M. M. Uddin, U.M. Jahan, V. Reukov, S. Minko, and S. Sharma, "Aligned polyhydroxybutyrate (PHB) nanofibers scaffolds via novel touchspinning method", The Fiber Society Conference, Oct 2023, Drexel University, Philadelphia, PA, USA. Poster Presentation
- M.M. Uddin, S. Mani, and **S. Sharma**, Bio-based coatings for high-performance paper packaging application and improved understanding of their water barrier properties, CB<sup>2</sup> Industry Advisory Meeting, Nov 2022, Kimberly-Clark Corporation, Roswell, GA, USA. Oral presentation
- M.M. Uddin and **S. Sharma**, Wearable piezoelectric generator, International conference on sustainable materials, management, and innovative technologies (ICSMMIT), Jun 2022, Coimbatore, India. Oral presentation
- M.M. Uddin, S. Mani, and **S. Sharma**, Bio-based coatings for high-performance flexible paper packaging application, CB<sup>2</sup> Industry Advisory Meeting, May 2022, Washington State University, Pullman, WA, USA. Oral presentation

### PRESS RELEASES AND MEDIA

- Study finds neck gaiters can reduce droplet spread, <https://ohsonline.com/articles/2020/12/21/neck-gaiters-are-effective-face-coverings-says-cdc-and-niosh-report.aspx>

### PROFESSIONAL CONTRIBUTIONS

#### ▪ **MEMBERSHIP, SOCIETY OFFICES, AND ACTIVITIES**

- ✓ Student Member of the Technical Association of the Pulp and Paper Industry (TAPPI), 2022- Present
- ✓ Student Member of the Fiber Society, 2022- Present
- ✓ Student Member of American Chemical Society, 2023- Present
- ✓ Student Member of the American Association of Textile Chemists and Colorists (AATCC), 2020- Present

▪ **TECHNICAL JOURNAL OR CONFERENCE REFEREE ACTIVITIES**

- ✓ Reviewer for the “Journal of Applied Polymer Science”
- ✓ Reviewer for the “Designed Monomers and Polymers”

▪ **OTHER PROFESSIONAL INVOLVEMENTS**

- ✓ Q & A Panelist, 46th Georgia Junior Science & Humanities Symposium, UGA, USA, 2021
  - ✓ Paper reader, 47th Georgia Junior Science & Humanities Symposium\*, UGA, USA, 2022
  - ✓ Paper reader, 48th Georgia Junior Science & Humanities Symposium\*, UGA, USA, 2023
- \*This symposium is supported by NSTA and the USA Department of NAVY, ARMY, and Air Force

**CERTIFICATIONS**

- Materials Characterization Workshop, PerkinElmer Analytical Solutions B.V., 2023
- Masters in Textiles, Merchandising, and Interiors (Polymer, Fiber, and Textile Sciences), 2021
- Basic Introduction to Materials Testing: Static, Instron, 2020
- Bachelor of Science in Textile Engineering, 2018

**WEBLINKS**

- GOOGLE SCHOLAR: <https://scholar.google.com/citations?user=eChqq80AAAAJ&hl=en>
- LINKEDIN: <https://www.linkedin.com/in/md-mazbah-uddin-58067b119/>

**PUBLIC AND COMMUNITY SERVICES**

- **Chair of Social Programming**, TMI, UGA, USA, 2019-2021
- ✓ Initiate, plan, and execute all social events by communicating with the graduate committee, graduate students, and the department head
- **Treasurer** at Bangladeshi Student Association (BASA) for International Student Life (ISL) at UGA, USA, 2019-2020
- ✓ Correspondence with ISL regarding fund allocation and budgeting for BASA-organized programs at UGA
- ✓ Fund collection from ISL, student members, alumni, local community, etc. for BASA
- ✓ Budgeting funds for organizing different cultural and international programs at UGA
- **General Secretary** at BASA for ISL at UGA, USA, 2021-2022
- ✓ Establishing communication among students, the community, and ISL with BASA’s executive committee
- ✓ Organizing social gatherings and meetings

**REFERENCES**

Dr. Suraj Sharma  
Professor  
Polymer, Fiber, and Textile Sciences  
University of Georgia, Athens, GA, USA  
ssharma@uga.edu

Dr. Sergiy Minko  
Professor  
Polymer, Fiber, and Textile Sciences  
University of Georgia, Athens, GA, USA  
sminko@uga.edu