

## Md Mazbah Uddin

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### Education

**University of Georgia (UGA), Athens, GA, USA**

May 2026

*Ph.D. Materials Science*

*(Major in polymer, fiber, and textile sciences)*

*Advisor: Professor Suraj Sharma*

*M.S. Textiles, Merchandising, and Interiors*

Jul 2021

*(Major in polymer, fiber, and textile sciences)*

*CGPA: 3.94/4.0*

*Thesis: Co-axial yarn-based electrical nanogenerators of flexible metal threads*

*Advisor: Professor Suraj Sharma and Sergiy Minko*

**Bangladesh University of Textiles, Tejgaon, Dhaka, Bangladesh**

Apr 2018

*BS. Textile Engineering*

*CGPA: 3.86/4.0*

*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

**University of Georgia**

*Graduate Research Assistant, Textiles, Merchandising, and Interiors (TMI)*

Jan 2022-Present

1. Bio-based coatings for high-performance flexible paper packaging application and improved understanding of their water barrier properties (2023-)

Sponsored by The National Science Foundation Industry & University Cooperative Research, <https://iucrc.nsf.gov/centers/center-for-bioplastics-and-biocomposites/>, CB<sup>2</sup>

2. Bio-based Coating for Flexible Packaging Applications (2021-)

✓ *Nanocellulosic hydrogel synthesis and its applications*

✓ *Biodegradable polymer-based emulsion synthesis*

Sponsored by The National Science Foundation Industry & University Cooperative Research, <https://iucrc.nsf.gov/centers/center-for-bioplastics-and-biocomposites/>, CB<sup>2</sup>

3. Fibrous scaffolds for cell culture studies (independent research)

✓ *PHB polymer-based fibrous scaffolds*

*Graduate Teaching Assistant, TMI, UGA*

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, Fall 2020, 2021, 2022

*Graduate Fellow Research Assistant, TMI, UGA*

*Aug 2019-Jul 2021*

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

**The study was sponsored by TenCate Geosynthetics, <https://www.tencategeo.us/en-us/>**

*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

## **Analytical and Technical Acumen**

- Universal Tester, DMA, XRD, FTIR, NMR, UV-Vis, DSC, TGA, SEM, TEM, optical microscopy, ellipsometry, AFM, DLS, SLS, rheometer, and so on.
- Data analysis: OriginLab, Microsoft Office, JMP, ImageJ, ANOVA
- Instrumentation of lab-scale machinery (using Autodesk AutoCAD and 3D printing)

## **Peer-Reviewed Publications**

4. **Uddin, M. M.**, Dip, T. M., & Sharma, S. "Wearable Nanogenerators". *Nanogenerators: Basics, Design Strategies, and Applications*. 2022, <http://dx.doi.org/10.1201/9781003187615-10>
3. **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," *Materials Technology*, vol. 37, no. 13, pp. 2465-2479, 2022/11/10 2022, DOI: 10.1080/10667857.2022.2038769.
2. **M. M. Uddin** et al., "Highly flexible and conductive stainless-steel thread based piezoelectric coaxial yarn nanogenerators via solution coating and touch-spun nanofibers coating methods," *Smart Materials and Structures*, vol. 31, no. 3, p. 035028, 2022/02/11 2022, DOI: 10.1088/1361-665X/ac5015.
1. Sikdar, P., **Uddin, M. M.**, Dip, T. M., Islam, S., Hoque, M. S., Dhar, A. K., & Wu, S. (2021). Recent advances in the synthesis of smart hydrogels. *Mater. Adv*, 2(14), 4532-4573.

## Awards and Honors

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

## Research Grants

2. \$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
1. \$500, Application of Core (PLA)-Sheath (PHB) Nanofibrous Yarn as Implantable Medical Textiles, AATCC Foundation Student Research Support Grant, 2019, American Association of Textile Chemists and Colorists (AATCC), co-authored with Suraj Sharma, 2019

## Licensed Technologies

Following technologies are licensed to DNY, LLC by the UGA Research Foundation and I am one of the inventors of these technologies,

- 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)

3. **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
2. **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, 2022, Georgia World Congress Center, May 2022, Atlanta, GA, USA. Poster presentation
1. **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)

3. 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
2. 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
1. 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://www.textileworld.com/textile-world/2020/09/university-of-georgia-study-finds-neck-gaiters-as-good-as-masks-in-reducing-droplet-spread/>
- <https://www.fcs.uga.edu/news/story/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

### 1. Membership, Society Offices, and Activities

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

### 2. Technical Journal or Conference Referee Activities

- *Reviewer for the "Journal of Applied Polymer Science" and "Designed Monomers and Polymers"*

### 3. 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

- Masters in Textiles, Merchandising, and Interiors (Polymer, Fiber, and Textile Sciences), 2021
- Basic Introduction to Materials Testing: Static, 2020
- Bachelor of Science in Textile Engineering, 2018

## Weblinks

- GOOGLE SCHOLAR: <https://scholar.google.com/citations?user=eChqq80AAAAJ&hl=en>
- SCOPUS: <https://www.scopus.com/authid/detail.uri?authorId=57226273306>
- PUBLONS: [webofscience.com/wos/author/record/32790404](http://webofscience.com/wos/author/record/32790404)
- LINKEDIN: <https://www.linkedin.com/in/md-mazbah-uddin-58067b119/>
- ORCID ID: <https://orcid.org/0000-0002-5740-1046>

## Public and Community Service

- **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**

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