Aneeba Chaudary, Ph.D.

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Materials Science Engineer (Ph.D. Candidate) with expertise in water-borne polymer formulations, functional coatings, nanomaterials, and wet-chemistry–based surface modification. Experienced in preparing, developing, and evaluating advanced coating systems using a broad range of materials characterization techniques and performance testing methods. Strong background in process optimization, scale-up, and industrial finishing, with the ability to translate research into practical manufacturing solutions. Effective collaborator with hands-on laboratory skills, structured documentation practices, and experience supporting cross-functional R&D teams through data-driven analyses and materials testing.

KEY SKILLS

- Polymer Science & Water-Borne Formulations
- Functional & Omniphobic Coatings
- Surface Engineering
- Chemical Finishing & Application
- Process Optimization & Scale-Up
- Chemical Process Engineering
- Laboratory Testing & Sample Preparation
- Experimental Documentation & Data Analysis
- Advanced Materials Characterization
- Mechanical & Performance Testing

EDUCATION

Ph.D., Materials Science & Engineering – Iowa State University **(Expected 2027)**
Advisor: Shan Jiang
M.Phil., Textile Engineering – Donghua University **(2019 – 2023)**
Advisor: Lifang Liu
B.Sc., Textile Science & Technology – University of Agriculture Faisalabad **(2013 – 2017)**
Thesis: Developed eco-friendly chemical finishing formulations and evaluated their impact on material durability and performance.

PROFESSIONAL EXPERIENCE

Graduate Researcher – Material Science and Engineering **(2023 – present)**
Iowa State University

- Developing water-borne, crosslinkable acrylic polymer coatings integrated with Janus nanoparticles, focusing on formulation optimization, curing behavior, and performance evaluation across diverse substrates.
- Investigating coating film formation, surface interactions, and morphology using laboratory testing, sample preparation, and advanced materials characterization to support data-driven R&D outcomes.

Donghua Univeristy

- Engineered nanocellulose-based composite materials and evaluated their thermal and mechanical performance through controlled processing, formulation adjustments, and materials testing in a lab environment.

Full list of 12 peer-reviewed publications available on Google Scholar and Website.

Research Intern **(Summer 2025)**
Janas Materials Inc

- Supported experimental design and testing of polymer and coating formulations, including data collection, analysis, and interpretation for performance evaluation.
- Collaborated closely with the CEO and research team in a startup coatings environment, contributing to formulation troubleshooting and project discussions.

Assistant Manager – Production **(2017 – 2019)**
Masood Textile Mills

- Managed textile finishing and coating operations, including control of chemical formulations, binder systems, resin/softener finishes, and curing conditions to meet material performance targets.
- Optimized finishing processes by adjusting bath chemistry, pickup levels, crosslinking parameters, and drying/curing profiles, ensuring consistent adhesion, hand-feel, and dimensional stability.
- Worked with QC, R&D, and Engineering teams to troubleshoot formulation issues, validate new finishing recipes, and improve process reliability and efficiency.

Internship – Processing & Finishing **(2016)**
Crestex inc.

- Assisted in textile processing and finishing operations by preparing chemical baths, monitoring formulation parameters, and supporting quality checks, developing hands-on experience in lab-based coating/finishing workflows and material performance evaluation.

AWARDS & RECOGNITION

Peer-Reviewed Journal Reviewer | Scientific Instrumentation Training |Vice President, Pakistan Student Association | MOS Certified | Conference Presentations & Research Talks | Outstanding Student Award | Merit-Based Scholarships