

Nasreen Khan

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Education

PhD Student in Materials Science and Engineering August 2017-Present
Paper Science and Engineering Minor Atlanta, GA
Georgia Institute of Technology (Georgia Tech)

Master of Science in Materials Science and Engineering (Dual Degree) 2008-2013
Bachelor of Science in Materials Science and Engineering Philadelphia, PA
Drexel University Cumulative GPA: 3.64

Master's Thesis: Hierarchically Ordered Polymer Nanofibers for Biomimetic Applications
Advisor: Dr. Christopher Li

Research and Industry Experience

Brettmann Research Group, Georgia Institute of Technology Atlanta, GA
Molecular Engineering for Integrated Product Development August 2017-Present
Graduate Researcher

- Researching the increasing of solids into the dryer via rational design of polyelectrolyte complexes for paper applications

Dunmore Corporation Bristol, PA
Technical Service Project Leader August 2015-June 2017

- Improved and automated color matching manufacturing processes of color coating formulations on plastic films
- Developed and improved analytical test methods with use of FTIR, Spectrophotometer, UV Vis, Brookfield Viscometer, Karl Fischer, etc. on a variety of developed coatings and film products including dyes, urethanes, acrylic, etc.
- Lead FTIR method development and analysis of competitive products and internal chemicals and items database
- Developed formulations for pigmented and dye coated products from laboratory to production scale
- Interfaced with vendors, suppliers, customers to discover and improve analytical testing capabilities and technologies
- Documented, recommended, and remediated safety procedures throughout laboratories and manufacturing facility as a member of site Safety Committee Member

DePuy Synthes, a Johnson and Johnson Company. West Chester, PA
Analytical Chemist, Study Director October 2013-July 2015

- Evaluated biocompatibility of medical devices for manufacturing residuals based on ISO 10993 guidelines
- Coordinated test method transfer with external test laboratories to conduct analytical and biological testing
- Utilized engineering drawings, material certifications, manufacturing routings, and bill of materials to gather information on product lines for testing and evaluate root causes of testing anomalies
- Analyzed data from TOC, FTIR, EDS, TGA, DSC, TOC, and cytotoxicity for determination of residual levels on metal and polymeric orthopedic devices

TerraCycle, Inc. Trenton, NJ
Process and Production Engineer July 2013-October 2013

- Researched applications and developed formulations for difficult to recycle materials including packaging
- Performed investigative testing inbound material and formulated plastic resins compositions using DSC and FTIR
- Outreached and fostered new business relationships for material acquisition and feasibility of utilizing materials for recycling

Soft Materials Group, Drexel University Philadelphia, PA
Graduate Researcher October 2011-June 2013

- Created nanofiber composite materials by optimizing properties of biodegradable synthetic polymers for bone implant applications
- Utilized solution polymer crystallization and electrospinning to fabricate hierarchically ordered nanofibers
- Characterized thermal, morphological, crystallographic, and additional properties of fiber-based composites using TGA, DSC, WAXD, FTIR, GPC, SEM, and tensile testing analysis

Ethicon, Inc., a Johnson and Johnson Company

Somerville, NJ

Biosurgical Research and Development Assistant

March 2011-September 2011

- Characterized functional and mechanical properties of synthetic plastic and biologically combined hemostat
- Collected data through experimental testing and reported in lab notebooks, technical test methods, and presentations
- Created a technical report of test methods development for quantifying the relationship of color to degradation of mechanical properties using spectrophotometry, water solubility, and tensile testing analysis

Biomimetic Design Group, Drexel University

Philadelphia, PA

Undergraduate Researcher

June 2009-December 2011

- Investigated crosslinking and mineralization techniques of natural polymers for future bone replacement applications
- Utilized SEM and EDS for mineral integration analysis
- Created and presented a research poster at Fall 2011 Materials Research Society conference, Boston, MA

Fit of Passion, LLC.

Philadelphia, PA

Business Development Specialist

April 2012-August 2012

- Aided development of a start-up company creating a web application for finding users the perfect jeans
- Migrated and maintained database of brands, tasks, data, and customers to custom-coded input system
- Created a comprehensive training manual detailing the efficient completion of daily tasks for future co-ops

Publications and Presentations

- Khan, N. and Puntambaker, S. "Utilizing Fourier Transform Infrared for Development and Quality Assurance of Cure Chemistries". *UV+EB Technology*, 2017 vol. 3, no.3, pp 18-24, July, 2017.
- Khan, N., "Utilizing Fourier Transform Infrared for Development and Quality Assurance of Cure Chemistries." *Converting Quarterly- Web Processing and Finishing Technologies*. 2017 Quarter 2, pp 68-73. May, 2017.
- Chen X., Gleeson S.E., Yu T., Khan N., Yucha R.W., Marcolongo M., Li C.Y. 2017. Hierarchically ordered polymer nanofiber shish kebabs as a bone scaffold material. *J Biomed Mater Res Part A* 2017:105A:1786–1798.
- Khan, N, Donius A, Hunger, P., Wegst, U.G.K.*, *Mineralization of Chitosan-based Materials*. Poster Session Presented at Materials Research Society Fall 2011 Meeting; 2011 Nov 27-Dec 1; Boston, Massachusetts.

Honors and Awards

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| • Renewable Bioproducts Institute Fellowship, Georgia Institute of Technology | 2017-2021 |
| • Materials Science and Engineering Outstanding Undergraduate Award, Drexel University | 2013 |
| • Cooperative Education Student of the Year for the College of Engineering, Drexel University | 2013 |
| • Alpha Sigma Mu, Honor Society for Materials Science and Engineering | 2012-2013 |
| • Pennoni Honors College Graduate with Distinction, Drexel University | 2013 |
| • Drexel Materials Science and Engineering Endowment Fund Scholarship | 2011-2013 |
| • Anne L. Stevens Endowed Scholarship Program for Women, Drexel University | 2011-2012 |

Extracurricular and Outreach Activities**The Franklin Institute Science Museum**

Philadelphia, PA

Science Presenter

May 2015-May 2017

- Interprets and presents a variety of scientific topics in hands-on and interactive activities to visitors
- Offers and supplements educational support in the museum's exhibits

Materials Research Society, Drexel University Chapter

Philadelphia, PA

Secretary

March 2012-June 2013

- Planned, organized, and arranged seminars, informational sessions, proposals, on-campus and conference events

Phillip B. Lindy Scholar Program, Drexel University

Philadelphia, PA

Lindy Scholar Mentor

February 2009-August 2009

- Mentored and tutored West Philadelphia sixth grade students in Mathematics and English with the goal of improving their educational success and inciting the desire to pursue an academic career