

# Joshua Manasco

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## OBJECTIVE

A challenging position in an innovational, driven environment where I can use my technical, management, and interpersonal skills to develop new products and processes to help overall growth of business.

## EDUCATION

*Aug'04–Feb'09 (expected)* **North Carolina State University (NCSU)**, Raleigh, NC

- § Ph.D. candidate in Chemical Engineering GPA **3.75/4.00**
- Dissertation topic: "High throughput electrospinning of biopolymers"
- Advisors: Dr. Saad A. Khan, NCSU and Dr. Juan Hinestroza, Cornell University

*Aug'01–Dec '03* **University of South Carolina (USC)**, Columbia, SC

- § B.S. in Chemical Engineering GPA **3.92/4.00**

*Aug'99–May'01* **Midlands Technical College**, Columbia, SC

- § General Engineering GPA **3.80/4.00**

## EXPERIENCE

*May'05–Present* **Research Assistant** – Dept. of Chemical & Biomolecular Engineering, NCSU

- § Designed and built melt electrospinning setup using an extrusion system for higher throughput and produced nanometer scale fibers from polymer melts increasing fiber yield by more than 10 fold over traditional solution electrospinning
- § Developed a model to help explain the effects of both material and process parameters on the melt electrospinning process
- § Explored the effect of blending supercritical CO<sub>2</sub> as a plasticizing agent for polymer melts and its effect on the final fiber morphology
- § Designed and built high temperature solution electrospinning setup to explore spinning of highly concentrated solutions to achieve high yield and reduce solvent consumption
- § Extensive experience in rheological characterization of solutions and melts of biopolymers
- § Collaborated with other members in the research group in providing consultancy to companies including BIOMET Inc., Boston Scientific, and MeadWestVaco
- § Worked with my advisor in writing grant proposals (pending)
- § Gained extensive experience in viscometry, thermogravimetry (TGA), differential scanning calorimetry (DSC), UV spectroscopy, and transmission (TEM) and scanning electron microscopy (SEM)

*Aug'04–May'08* **Graduate Teaching Assistant** – Dept. of Chemical & Biomolecular Engineering, NCSU

- § Planned and mentored projects for 6 teams of students working in groups and evaluated their progress
- § Taught sessions for different courses for juniors, seniors and graduate students for over 5 semesters including distance education students

*Jun'03–Aug'03* **Research Experience for Undergraduates (REU)** – Materials Science Dept., Pennsylvania State University

- § Researched and developed a summer project using thermal vapor deposition to create silicon nanowires using a tube furnace
- § Gained knowledge in the use of temperature control equipment and SEM

**COMPUTER SKILLS:** MatLab, Microsoft Office, MathCad, Origin, Visio, Revolution, Dreamweaver, Photoshop ImageJ

## AWARDS, HONORS

- § Dean's Fellowship, NCSU
- § Phi Beta Kappa National Honor Society lifetime member
- § Graduate Assistance in Areas of National Need (GAANN) scholarship
- § 1<sup>st</sup> place, Schoenborn poster competition, NCSU, March 2007

## ACTIVITIES

*Aug'01–Dec'02* **Vice President (AIChE)** – **University of South Carolina (USC)**, Columbia, SC

- § Organized and participated in charity events for the USC chapter of AIChE (American Institute of Chemical Engineers)
- § Included charity golf tournaments and collection of non-perishables for the Harvest Hope Foodbank

## PUBLICATIONS AND CONFERENCES

- § **Manasco, J.**, Saqing, C., Talwar, S., Hinestroza, J., and Khan, S.A., *High throughput nanofiber production via electrospinning of polycaprolactone melts*, in preparation for submission to **Macromolecules** (draft available)
- § Saqing, C., **Manasco, J.**, and Khan, S.A., *Electrospun nanoparticle-nanofiber composites with the electrospinning polymer as reducing, protecting, and templating agent*, in preparation for submission to **Nanoletters** (draft available)
- § **Manasco, J.**, Saqing, C., Hinestroza, J., and Khan, S.A., *Effects of spinning concentrated solutions at elevated temperatures improving nanofiber yield*, in preparation for submission to **Macromolecules**
- § **Manasco, J.**, Saqing, C., Hinestroza, J., and Khan, S.A., *Electrospinning of polyvinyl alcohol containing poorly water soluble drugs encapsulated in hydroxypropyl-B-Cyclodextrin*, (in preparation)
- § Matthews, Michael A., Davis, T. A., Crews, J., **Manasco, J.**, and Marrero, Eyma Y., *Production of hydrogen from chemical hydrides via hydrolysis with steam*, **AIChE meeting**, Austin, TX, Nov. 2004
- § **Manasco J.**, Hinestroza, J., and Khan, S.A., *Electrospinning of nanofibers from polymer melts*, **AIChE meeting**, San Francisco, Nov. 2007
- § Khan, S. A., Talwar, S., **Manasco, J.**, and Saqing, C, *Functional nanofibers via electrospinning: from coatings to biomedical therapeutics*, International Conference on Natural Polymers, Kottayam, India, Nov. 2007 (Invited Talk)
- § **Manasco, J.**, Saqing, C., Talwar, S., Hinestroza, J., and Khan, S.A., *High throughput nanofiber production via electrospinning of polycaprolactone solutions and melts*, ACS, April 2008
- § **Manasco, J.**, Saqing, C., Talwar, S., Hinestroza, J., and Khan, S.A., *High throughput nanofiber production via electrospinning of polycaprolactone melts*, Fiber Society Meeting, France, May 2008 (Invited Talk)
- § **Saqing, C.** Manasco, J. and Khan, S.A. *“Functionalization of Nanofibers with Metal Nanoparticles Using Novel Electrospinning-Based Methodologies”* Fiber Society Meeting, France, May 2008 (Invited Talk)

## REFERENCES

- 1) Dr. Saad A. Khan  
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