

Juan Hinestroza

Web Bio

Information

Biography

Biographical Statement

Detailed information about Professor Hinestroza and his research group is available at: <http://nanotextiles.human.cornell.edu/>

Juan P. Hinestroza is a tenured Associate Professor of Fiber Science and directs The Textiles Nanotechnology Laboratory at the College of Human Ecology of Cornell University in Ithaca, NY. Professor Hinestroza obtained a Ph.D. from the Department of Chemical and Biomolecular Engineering at Tulane University and B.Sc. in Chemical Engineering from Universidad Industrial de Santander. Prior to pursuing doctoral studies, Professor Hinestroza worked as a process control engineer for The Dow Chemical Company.

Professor Hinestroza works on understanding fundamental phenomena at the nanoscale that are of relevance to Fiber and Polymer Science. Hinestroza has received over 5.2 MM USD in research funding (Federal and State agencies as well as Industrial Consortiums) for his pioneering work in exploring new pathways for creating multifunctional fibers via manipulation of nanoscale phenomena.

Professor Hinestroza has been the recipient of a myriad of awards including the National Science Foundation CAREER Award, the J.D. Watson Young Investigator Award from NYSTAR and the Educator of the Year Award from the Society of Professional Hispanic Engineers. Professor Hinestroza has also delivered several invited lectures worldwide at Universities and Research Centers in Italy, Korea, China, Japan, Taiwan, Mexico, Spain, Brazil, The Netherlands, Colombia, Argentina, Hungary, Vietnam, The United Arab Emirates, India, Czech Republic, etc.

Professor Hinestroza's scientific work has been featured in Nature Nanotechnology, MRS Bulletin, Materials Today, C&E News, National Geographic, ASEE Prism as well as mainstream media outlets such as CNN, Wired, TechReview, Popular Science, ABC News, NYTimes, Reuters, PBS, NPR and BBC.

In addition to his scientific endeavors, Professor Hinestroza and his research group are actively involved in community outreach activities aimed at increasing the number of members from underrepresented minority groups in Science, Technology, Engineering and Mathematics as well as engaging senior citizens in collaborative and inter-generational learning experiences.

Professional

Current Professional Activities

Professor Hinestroza is a member of the Executive Committee in the Division of Cellulose and Renewable Materials of the American Chemical Society. Hinestroza is also a member of the Society of Materials Research MRS, The American Institute of Chemical Engineers AIChE, The Fiber Society and The Society of Hispanic Professional Engineers SHPE.

Research

Current Research Activities

The main focus of the Hinestroza Research Group is to explore the interface between the technologically established and mature field of textile science with the emerging and revolutionary field of nanoscale science. Textile technology was the first beneficiary of the scientific developments from the 18th century industrial revolution while the nanotechnology revolution emerged the end of the 20th century. Our research group aims at merging two hundred years of innovation history.

We believe that this unusual combination, between an established and an emerging scientific field, can provide unique scientific platforms that take advantage of the ability of nanoscale science at controlling the synthesis of materials and probing unusual phenomena at the nanoscale with the time-tested capabilities of textile and fiber processing and manufacturing.

In order to explore and understand nanoscale phenomena of relevance to fiber science we decided to pursue a three-pronged approach as follows: The first branch was aimed at modifying the properties of existing textile products, specifically natural fibers, using nanomaterials. The second approach was aimed at creating novel nanofibers by taking advantage of unique nanoscale phenomena and judiciously using external fields. The third effort was aimed at developing metrology and computer simulation tools to better understand traditional issues in textile processing such as friction and electrostatic charging whose influence is magnified at the nanoscale. These three efforts are highly complementary and when combined they are expected to provide a more comprehensive understanding of nanoscale phenomena of relevance to fiber science.

Extension

Education

Education

Ph.D. Chemical and Biomolecular Engineering, Tulane University 2002
B.Sc. Chemical Engineering, Universidad Industrial de Santander 1995

Courses

Courses Taught

FSAD 4660 : *Textiles Apparel Innovation*
FSAD 6160 : *Rheology of Solids*
FSAD 6390 : *Mechanics of Fibrous Systems*

Websites

Related Websites

<http://nanotextiles.human.cornell.edu/>

Administration

Publications

Selected Publications

Journals:

Mattana, G., Cosseddu, P., Fraboni, B., Malliaras, G., Hinestroza, JP., Bonfiglio, A. Organic Electronics on natural cotton fibers, *Organic Electronics*, (2011) 12, 2033-2029

Li, Y, Liu, H., Song, J., Rojas, OJ., Hinestroza, JP, Adsorption and Association of a Symmetric PEO-PPO-PEO Triblock Copolymer on Polypropylene, Polyethylene, and Cellulose Surfaces, *ACS Appl. Mater. Interfaces*, (2011),3,7, 2349-2351

Dabirian, F., Hosseini Ravandi, S.A., Hashemi Sanatgar, R., Hinestroza, JP Manufacturing of twisted continuous PAN nanofiber yarn by electrospinning process, *Fibers and Polymers* (2011) 12,5, 610-615

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Zhu, H., Hinestroza, J., Collection Efficiency for Filters with Staggered Parallel Y and Triple Y Fibers: A Numerical Study (2009), *Journal of Engineered Fibers and Fabrics*, 4,1,16-25

Kim, J., Hinestroza, J., Jasper, W., Barker, R., Effect of Solvent Exposure on the Filtration Performance of Electrostatically Charged Polypropylene Filter Media (2009), *Textile Research Journal*, 79, 4, 343-350

Avila, A.G., Hinestroza, J.P. Tough Cotton (2008), *Nature Nanotechnology*, 3, 458-459

Dong, H., Wang, D., Sun, G., Hinestroza, J., Assembly of Metal Nanoparticles on Electrospun Nylon 6 Nanofibers by Control of Interfacial Hydrogen Bonding Interactions (2008), *Chemistry of Materials*, 20, 21, 6627-6632.

Wu, H., Fan, J., Qin, X., Mo, S., Hinestroza, J., Fabrication and characterization of a novel PP/PVA/Al hybrid layered assembly for high performance fibrous insulations (2008), *Journal of Applied Polymer Science*, 110,4,2525-2530

Talwar, S., Hinestroza, J. Pourdeyhimi, B., Khan, S., Associative Polymer Facilitated Electrospinning of Nanofibers (2008) *Macromolecules*, 41,12,4275-4283

Wang, D., Sun, G., Chiou, B-S, Hinestroza, J., Controllable Fabrication and Properties of Polypropylene Nanofibers, *Polymer Eng. & Sci.*, 47,11, 1865-1872 (2007)

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