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 5.3 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, a US Fulbright Scholar, 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 delivered invited lectures worldwide at Universities and Research Centers in Italy, Korea, China, Japan, Taiwan, Mexico, Spain, Brazil, The Netherlands, Colombia, Argentina, Hungary, Czech Republic, Vietnam, Switzerland, Finland, Austria, France, Singapore, Thailand, Chile, Turkey and Germany. In addition, Professor Hinestroza has received visiting scientist fellowships from The Chubu Foundation for Science and Technology of Japan, The National Council for Scientific and Technological Development in Brazil and The Swiss National Science Foundation.

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, The Guardian, 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.

Teaching

Professional

Current Professional Activities

Professor Hinestroza is a member of 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*. The field of textiles was the first beneficiary of the scientific developments from the 18th century's 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 of controlling the synthesis of materials and probing unusual phenomena at the nanoscale with the time-tested capabilities of textile and fiber 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 is aimed at **modifying the properties of existing textile products, specifically natural fibers, using nanomaterials**. The second approach is aimed at **creating novel nanofiber based materials by taking advantage of unique self and directed assembly phenomena**. The third effort is 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 relevant 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

Administrative Responsibilities

Professor Hinestroza serves as the Director of Graduate Studies for the Department of Fiber Science & Apparel Design and he is also a member of the grievance committee of Cornell's College of Human Ecology

Publications

Selected Publications

LATEST PEER-REVIEWED PUBLICATIONS

1. Ozer, R., **Hinestroza, JP.**, One-step growth of isoreticular luminescent metal-organic frameworks on cotton fibers, RSC Advances (2015), DOI: 10.1039/C4RA15161E.
2. Rodriguez, H., **Hinestroza, JP.**, Ochoa-Puentes, C., Sierra, C. Soto, C. Antibacterial activity against Escherichia coli of Cu-BTC (MOF-199) metal?organic framework immobilized onto cellulosic fibers *Journal of Applied Polymer Science* (2014), 131,19, 40815-40820
3. Zhukovskyi, M., Sanchez-Botero,LM, McDonald, MP, **Hinestroza, JP.**, Kuno, M. Nanowire-functionalized cotton textiles, *ACS Applied Materials and Interfaces* (2014), 6, 4, 2262-2269
4. Lange,L., Ochanda, F., Obendorf, SK, **Hinestroza, JP.**, CuBTC Metal-organic Frameworks Enmeshed in Polyacrylonitrile Fibrous Membrane Remove Methyl Parathion from Solutions *Fibers and Polymers* (2014), 15,2, 200-207
5. Luz, Priscilla, Silva, M., **Hinestroza, JP.**, Curcumin-Loaded Biodegradable Electrospun Fibers: Preparation, Characterization and Differences on the Fibers Morphology, *International Journal of Polymer Analysis and Characterization* (2013), 18-7, 534-544
6. Chacon-Patino, M., Blanco-Tirado, C., **Hinestroza, JP**., Combariza, MY., Biocomposite of nanostructured MnO2 and Fique fibers for efficient dye

degradation *Green Chemistry* (2013), 15, 2920-2928.

7. Alzate-Sanchez, D., **Hinestroza, JP**., Rodríguez, R., Sierra-Avila, C., Synthesis of the novel (E,E)-2,5-dimethoxy-1,4-bis[2-(4-ethylcarboxilatestyril)] benzene by the Heck reaction, *Synthetic Communications* (2013), 43,17,2280-2285
8. Song, J., Wang, C., **Hinestroza,JP.**, Electrostatic assembly of core-corona silica nanoparticles onto cotton fibers, *Cellulose* (2013), 20,4, 1727-1736
9. Nolasco-Arizmendi, V., Morales-Luckie,R., Sánchez-Mendieta, V., **Hinestroza, JP.**, Castro-Longoria, E., Vilchis-Nestor, AR, Formation of silk-gold nanocomposite fabric using grapefruit aqueous extract, *Textile Research Journal* (2013), 83, 12, 1229-1235.
10. Xiang, C., Taylor, A., **Hinestroza, JP**, Frey MW., Controlled release of nonionic compounds from poly(lactic acid)/cellulose nanocrystal nanocomposite fibers,*Journal of Applied Polymer Science* (2013), 127,1, 79-86
11. Jiri, C. , Hinestroza JP., Lukas, D., Production of Poly(vinylalcohol) Nanoyarns Using a Special Saw-like Collector, Fibers & Textiles of Eastern Europe(2013), 2,98,28-31
12. Bonilla, R., Montenegro,C., Ávila, A., **Hinestroza,JP.,** Direct observation of spatial distribution of charge of an electret polypropylene fiber using Electrostatic Force Microscopy, *Journal of Microscopy* (2012), 248, 3, 266-270
13. Mendoza-Bello, S., Morales-Luckie, RA., Flores-Santos, L., **Hinestroza, JP.**, Sanchez-Mendieta, V., Size-controlled synthesis of Fe2O3 and Fe3O4 nanoparticles onto zeolite by means of a modified activated-coprecipitation method: effect of theHCl concentration during the activation, *Journal of Nanoparticle Research* (2012),14,11, 1242-1251
14. Park, G., Jung, YL, Lee, GW, **Hinestroza, JP.,** Jeong, Y., Carbon Nanotube/Poly(vinyl alcohol) Fibers with a Sheath-core Structure Prepared by Wet Spinning, *Fibers and Polymers* (2012), 13,7,874-879
15. Castellanos, L., Blanco-Tirado C., **Hinestroza, JP.**, Combariza, M.Y., In-situ synthesis of gold nanoparticles using Fique natural fibers as template,*Cellulose* (2012), 19,6,1933-1943
16. Becerril-Juárez, I., Morales-Luckie, R., Ureña-Nuñez, F., Arenas-Alatorre, J.,**Hinestroza, JP.**, Sánchez-Mendieta, V., Silver micro-, submicro- and nano-crystals using bovine bone as template. Formation of a silver/bovine bone composite (2012), *Materials Letters*, 85, 157-160
17. Silva da Pinto, M., Sierra-Avila, C., **Hinestroza, JP.**, In situ synthesis of a Cu-BTC metal–organic framework (MOF 199) onto cellulosic fibrous substrates: cotton, (2012), *Cellulose*, 19,5, 1771-1779
18. Gangadharan, S., Kuznetsov, A., Zhu, H., **Hinestroza, JP.**, Jasper, W., Modeling of Cross-Flow Across an Electrostatically Charged Monolith Filter,*Particulate Science and Technology*, (2012), 30, 5, 461-473
19. Barrera C, Herrera AP, Bezares N, Fachini E, Olayo-Valles R, **Hinestroza JP**, Rinaldi C., Effect of poly(ethylene oxide)-silane graft molecular weight on the colloidal properties of iron oxide nanoparticles for biomedical applications, *J Colloid Interface Science* (2012), 377, 40-50
20. Dabirian, F., Hosseini, S.A., **Hinestroza, JP**, Abuzade, RA., Conformal coating of yarns and wires with electrospun Nanofibers, *Polymer Engineering and Science* (2012), 52,8, 1724-1732
21. Y. Li, Rojas, OJ, **Hinestroza, JP**., Boundary Lubrication of PEO-PPO-PEO Triblock Copolymer Physisorbed on Polypropylene, Polyethylene, and Cellulose Surfaces, *Ind. Eng. Chem. Res.*, (2012), 51 ,7, 2931–2940

22. Song, J., Birbach, N., **Hinestroza, JP.**, Deposition of silver nanoparticles on cellulosic fibers via stabilization of carboxymethyl groups, *Cellulose*, (2012), 19, 2, 411-424
23. Yu J-Y, Zheng N, Mane G, Min KA, **Hinestroza JP**, Zhu, H., Stringer, K., Rosania, G., A Cell-based Computational Modeling Approach for Developing Site-Directed Molecular Probes. *PLoS Comput Biol* (2012), 8,2: e100237

BOOKS

Hinestroza, J., Netravali, A., (2014) *Cellulose Based Composites*, Wiley-VCH Verlag GmbH & Co **ISBN 978-3-527-32719-5** http://amzn.com/3527327193

LATEST BOOK CHAPTERS

1. Dong, H., **Hinestroza, JP**., (2014) Conformal Coating of Antimicrobial Silver Nanoparticles on Cationic and Anionic Cellulosic Substrates. In Hinestroza and Netravali (Eds), Cellulose Based Composites, Wiley-VCH **ISBN 978-3-527-32719-5**

2. Morales-Luckie, R., Vilchis-Nestor,A., Sanchez-Mendieta, V., **Hinestroza, JP**., (2014) Bio-inspired Synthesis of Metal Nanoparticles Using Cellulosic Substrates as Nature Templates. In Hinestroza and Netravali (Eds), Cellulose Based Composites, Wiley-VCH **ISBN 978-3-527-32719-5**

3. Morales-Luckie,R., Gama-Lara, S., Becerril-Juarez, I., Vilchis-Nestor, AR., Sanchez-Medieta, V., **Hinestroza, JP.,** (2014) Bio-composites made from bovine bone and crystals of silver and platinum. In Hinestroza and Netravali (Eds), Cellulose Based Composites, Wiley-VCH **ISBN 978-3-527-32719-5**