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EDUCATION

University of California, Los Angeles

Ph.D. in Biomedical Engineering, January 2005
M.S. in Biomedical Engineering, June 2003
B.S. in Physiological Sciences, December 2001

ACADEMIC POSITIONS

September 2006-

Assistant Professor

Northwestern University

Departments of Biomedical Engineering and Mechanical Engineering

Research Areas: Nanoscale devices for cellular gene program and neural interrogation; biotic-abiotic interfacing; Hybrid polymeric materials for cellular and protein functionalization

2006-Present

Full Member

Robert H. Lurie Comprehensive Cancer Center

Feinberg School of Medicine

Northwestern University

Research Areas: Elution of glucocorticoid and liver x receptor (LXR)/peroxisome proliferation activated receptor (PPAR γ) agonists via biologically inert thin films for the attenuation of inflammatory gene programs

2007-Present

Visiting Professor

Department of Biomedical Engineering

Peking University, Beijing China

Research Areas: RNAi-functionalized nanoparticles for controlled gene silencing.

2008-Present

Member

Institute for Bionanotechnology in Medicine (IBNAM)

Northwestern University

Research Area: Nanodiamond-based Pericardial Devices for Anti-Inflammation

2005-2006

Research Associate

California Institute of Technology (Caltech)

Department of Bioengineering/Electrical Engineering

Mentor: Professor Yu-Chong Tai (pioneer in MEMS technology, Packard awardee)

Research Topic: Using nano/micro technologies and bio-cloaking materials for improving biotic-abotic compatibility and enhancing of implant efficiency

2005-2006

**California Nanosystems Institute/Hewlett-Packard Postdoctoral Research Fellow
University of California at Los Angeles (UCLA)**

Department of Mechanical Engineering

Mentor: Professor Yong Chen (Top 50 Nanotechnologist in the United States-Scientific American)

Research Topic: Interfacing nanofabricated electrode arrays with neurons and cardiomyocytes for nanoscale interrogation applications

KEY CONTRIBUTIONS

1. Developed the World's First Nanodiamond Hydrogel-Based Drug Delivery System:

- Featured on CNN Homepage, Popular Science, United Press International, Cancer Research UK, NSTI, Nanotechweb, Yahoo/Reuters affiliates, and over 100 international news outlets
- Platform technology that could be functionalized with virtually any drug
- Chemotherapeutic activity could be switched on/off based on drug desorption and adsorption to the nanodiamond surface
- Easily dispersible in water
- Comprehensive animal model studies show *unaffected* liver function and *unaffected* animal survival
- Multiple cancer model *in vivo* studies underway with Bishop Laboratory-UCSF (**Nobel Laureate in Medicine, 1989 for the discovery retroviral oncogene**)

2. Developed Nanocloak Film Technology for Non-Invasive Localized Drug Delivery:

- 10,000 times thinner than existing drug delivery technology with better efficacy, demonstrated *in vivo* (Published as Cover Article in ACS Nano, Featured in Chicago Tribune and USA Today)
- Technology suppressed *in vivo* inflammation for >2 weeks with nanoscale dimensions
- No animal toxicity observed (10,000x injection of polymer yielded normal liver function)
- Degree of activity tunable depending on the number of Nanocloak layers applied

3. Developed Nanodiamond-Embedded Patch Device as a Localized Drug Delivery Implantable Microfilm:

- Device resembles 'plastic wrap' and is embedded with slow release nanodiamonds
- Extraordinary drug loading capacity of the nanodiamonds enables orders of magnitude increase in drug carrying ability with no impact on device dimensions-microfilm architecture retained for facile implantation while being non-invasive
- Technology is scalable and is developed for multi-therapeutic delivery
- Technology currently undergoing animal testing for broad applicability in cardiovascular anti-inflammation, local chemotherapy, wound healing, and pain management

HONORS AND AWARDS

- **Society of Manufacturing Engineers John G. Bollinger Outstanding Young Manufacturing Engineer Award, Notification in 2008, Awarded in 2009**
- **Wallace H. Coulter Foundation Early Career Award in Translational Research, 2008**
- **V Foundation for Cancer Research V Scholar** (1 of 15 selected in the nation)
- **Plenary Speaker**, 34th Fullerene-Nanotube Research Society International Meeting, 2008
- **Invited Lecturer**, Diamond 2008, Barcelona, Spain, 2008
- **Invited Lecturer**, Nanodiamond 2008, St. Petersburg, Russia, 2008
- **Invited Lecturer**, IMEC Visionary Symposium, Leuven, Belgium, 2008
- **Searle Fellow**, Northwestern University, 2008
- **Keynote Speaker**, IEEE International Conference on Nano/Molecular Medicine and Engineering (IEEE-NANOMED), 2007
- **Visiting Professor**, Peking University Department of Biomedical Engineering
- **IEEE New Faces of Engineering National Award Honoree**, (Featured on National Engineers Week website), 2007
- **First Place Winner**, Kellogg School of Management Venture Competition (For BioticLabs, emerging nanomedicine technology based on Prof. Ho's work in scalably fabricated drug delivery systems)
- **Focus Section Editor**, IEEE Nanotechnology Magazine
- **Guest Editor** (Nanobiotechnology Special Issue), Journal of the Association for Laboratory Automation
- **Guest Editor** (Nano-Engineered Medicine Special Issue), IEEE Nanotechnology Magazine
- Panelist, NIH-NANO Special Emphasis Study Section
- McCormick Corporate Partners Research Grants (5 Awarded to Laboratory Members)
- Semi-finalist, Northwestern INNOVATION Venture Competition (Lead inventor/team mentor)
- *Leading Health Professional of the World*; Citation: Nanoscale Medicine (Cambridge, England) 2007
- Katten Muchin Rosenman Scholarship-Robert H. Lurie Comprehensive Cancer Center (to postdoctoral scholar H. Huang)
- *Who's Who in Engineering Academia*
- *Who's Who Among Executives and Professionals*, 2006
- Monte Jade Organization Dr. Denny J. Ko Award , Spring 2005
- Full Member, Sigma Xi Research Society, elected Fall 2004
- UCLA Biomedical Engineering Society, Outstanding Student Award, 2004
- University of California, Los Angeles, Bioengineering Dept., Departmental Fellowship, 2004-2005
- Best Poster Presentation Award Winner, UC Systemwide Bioengineering Symposium, 2003
- DARPA Molecular Mechanics Scholarship Winner, 2001 (for best poster presentation)
- University of California, Los Angeles, Bioengineering Dept., Departmental Fellowship, 2002-2003
- UCLA Chancellor's Service Award, 2002
- Guenther Empowerment Award, UCLA Unicamp 1999
- Faculty Woman's Club Endowed Scholarship, 1997

ARCHIVED PAPERS

Published or Accepted

Publication at Northwestern University

1. H. Huang, E. Pierstorff, and **D. Ho*** "Self-assembling Dispersed Detonation Nanodiamonds into a Biofunctional NanoFilm ", *ACS NANO*, 2(2), 203-212, 2008.
2. E. Chow, E. Pierstorff, G. Cheng, and **D. Ho*** "Nanofilm copolymer platform for controlled drug delivery", *ACS Nano*, 2, 33-40, 2008. **Cover Article, Featured in The Chicago Tribune, USA Today, ScienceDaily, Drug Discovery News, and over 50 international news outlets.**
3. E. Chow, B. Chu, G. Cheng, and **D. Ho***, "Utilizing Block Copolymers to Fabricate Versatile Electro-Active and Inflammation Attenuating Substrates for Biological Interrogation," *NANO*, 2(6), 351-359, 2007. **Cover Article**
4. H. Huang, E. Pierstorff, E. Osawa, and **D. Ho*** "Active Nanodiamond Hydrogels for Chemotherapeutic Delivery", ePub ahead of print, Oct. 5th, 7, 3305-3314, *Nano Letters*, 2007. **Received press coverage on CNN.COM (HOMEPAGE), United Press International (UPI.com), Popular Science.com, Yahoo affiliate, Reuters.com, Cancer Research UK, NSTI, and over 100 other news outlets.**
5. M Liu, **D. Ho**, and Y.C. Tai, "Monolithic fabrication of three-dimensional microfluidic networks for constructing cell culture array with an integrated combinatorial mixer, *Sens. Actuators B: Chem. Epub ahead of print*, doi:10.1016/j.snb.2007.09.074, 2007
6. E. Shin, M. Chen, S. Daram, S. Samuel, S. Gupta, E. Robinson, E. Pierstorff, and **D. Ho***, "Dynamic Cellular Adhesion Mediated by Copolymeric Nanofilm Substrates," accepted to *J. Assoc. Lab. Automat. (JALA)*, 2008. **Invited Issue Article**
7. E. Pierstorff, M. Krucoff, and **D. Ho*** "Apoptosis induction and attenuation of inflammatory gene expression in murine macrophages via multitherapeutic nanomembranes" *Nanotechnology*, 19, Epub ahead of print DOI: 10.1088/0957-4484/19/26/265103 2008.
8. E. Pierstorff and **D. Ho***, "Nanomembrane-Driven Co-elution and Integration of Active Chemotherapeutic and Anti-inflammatory Agents, *Int. J. Nanomedicine*, accepted, 2008.
9. E. Robinson, R. Lam, E. Pierstorff, and **D. Ho***, "Localized Therapeutic Elution via an Amine Functionalized Poly-P-Xylene Microfilm Device" *J. Phys. Chem. B*, accepted, 2008.
10. A. Fung, V. Kapadia, E. Pierstorff, D. Ho*, Y. Chen, "Induction of Cell Death by Magnetic Actuation of Nickel Nanowires Internalized by Fibroblasts," *J. Phys. Chem. C*, accepted, 2008.
11. R. Lam and **D. Ho***, The Coalescence of Nanotechnology with Systems Biology for Optimized Drug Delivery, accepted to *J. Nanotech. Law and Bus.*, 2008 **Cover Article**
12. K. Liu, R. Lam, S. Samuel, S. Gupta, J. Leuthner, E. Pierstorff, and **D. Ho***, "Synaptotagmin – Functionalized Neuromimetic Nanomembranes ," accepted to *J. Assoc. Lab. Automat. (JALA)*, 2008. **Invited Issue Article**
13. P.K. Wong, and **D. Ho*** " Emergent Diagnostic and Therapeutic Technologies for Nano-Engineered Medicine," *IEEE Nanotech. Mag.-Nanoengineered Medicine Special Focus*, 2(2), 9-13, 2008, **Cover Article.**
14. E. Pierstorff, M. Krucoff, and **D. Ho***, "Multifunctional bio-carrier technology for localized inflammation suppression" accepted to *IEEE Adv. Micro, Nano, Mol. Sys.*, 2007.

15. M. Chen, H. Huang, E. Pierstorff, and **D. Ho***, "Active Parylene-encapsulated Copolymer Membranes", accepted to *IEEE Adv. Micro, Nano, Mol. Sys.*, 2007.
16. E. Pierstorff and **D. Ho***, "Monitoring, Diagnostic, and Therapeutic Technologies for Advanced Medicine at the Intersection of Life Science and Engineering," accepted to *Journal of Nanoscience and Nanotechnology*, 7, 2949–2968, 2007. **Cover Article**
17. E. Chow, G. Cheng, Y.C. Tai, and **D. Ho***, "Cellular Inflammation Suppression Via Glucocorticoid-Functionalized Copolymers," accepted to *IEEE NTC Advances in Micro, Nano, and Molecular Systems*, 2007.
18. M. Liu, **D. Ho**, and Y.C. Tai, "A monolithically fabricated combinatorial mixer for microchip-based high-throughput cell culturing assays," accepted to *IEEE NTC Advances in Micro, Nano, and Molecular Systems*, 2007.
19. D. Choi, A. Fung, H. Moon, E. Kan, **D. Ho**, and Y. Chen, "Transport of living cells with magnetically assembled nanowires," *Biomed. Microdev.*, 9 (2),143-148, 2007.

Submitted/In Preparation

20. R. Lam, M. Chen, H. Huang, E. Osawa, and **D. Ho***, "Nanodiamond-Embedded Parylene as a Chemotherapeutic Device, *ACS Nano* submitted, 2008.
21. M. Chen, E. Robinson, H. Huang, E. Pierstorff, and **D. Ho*** "Active Parylene-Encapsulated Copolymer Membranes" *Annals of the Biomedical Engineering Society*, 2007.
22. E. Pierstorff, R. Lam, and D. Ho*, "Nanoscale Architectural Tuning of Parylene Patch Devices to Control Therapeutic Release Rates," *Nanotechnology*, submitted, 2008.
23. D. S. Choi, A. O. Fung, H. Moon³, G. Villareal, Y. Chen, D. Ho, N. Presser, G. Stupian⁶, and M. Leung, "Detection of neural signals with vertically grown single platinum nanowire – nanobud" *J. Nanosci. Nanotech.*, submitted, 2008.
24. B. Huang, E. Pierstorff, and **D. Ho*** "Collagen-Copolymer Nanofilm Active Substrating for Cellular Architecture Manipulation" *Nanotechnology*, 2007.
25. M. Chen, E. Pierstorff, R. Lam, R. Chatterton, S. Khan, E. Osawa, and **D. Ho*** "Nanodiamond-Mediated Delivery of Water-Insoluble Therapeutics," *Nano Letters*, in prep 2008.
26. E. Schopf, Y. Chen, and **D. Ho*** "Autonomous Alignment of C2C12 Murine Myoblasts Via Hybrid Cellular Adhesion Promoter Activated Copolymers", *Polymer*, in prep 2007.
27. H. Huang, E. Pierstorff, E. Osawa, and **D. Ho***, "pH-Regulated Drug Loading and Release from Nanodiamonds," *PNAS* in preparation, 2008.
28. H. Huang, M. Chen, P. Bruno, R. Lam, D. Gruen, and **D. Ho***, "Collagen and Therapeutic-Functionalized Ultrananocrystalline Diamond Thin Films for Anti-inflammatory Implant Coating Applications," submitted 2008.
29. V. Kapadia, H. Huang, E. Pierstorff, and **D. Ho***, "Magneto-Active Nanotubes as Therapeutic Agents", in preparation, 2008.

Publication Prior to Northwestern University

30. **D. Ho** et. al "Utilizing Platform Biomaterial Technology to Fabricate Cytomimetic Biotic-Abiotic Membranes" Springer Handbook on Nanotechnology, Vol. 2, 2006. **Invited Paper**
31. H. Lee, **D. Ho***, and C.D. Montemagno, "Fluorometric Measurement of Vectorially-Inserted Purple Membrane Activity Across Block Copolymer Thin Films," *Polymer* 47:2935-2941, (2006).
32. **D. Ho***, S. Chang, and C.D. Montemagno, "Fabrication of biofunctional nanomaterials via *Escherichia coli* OmpF protein air-water interface insertion/integration with copolymeric amphiphiles," *Nanomedicine*, 2: 103-112, (2006).
33. D. Garcia, **D. Ho***, and C.M. Ho, "Bio-Nano-Information Fusion," A chapter in Nanotechnology: Science, Innovation, and Opportunity, accepted April 2005.
(Includes contributions by Richard E. Smalley, Winner of the 1996 Nobel Prize in Chemistry; Mihail Roco, Director of the National Nanotechnology Initiative)
34. **D. Ho***, D. Wendell, and C.D. Montemagno, "Developing Hybrid Bionanosystems Using Synthetic Biology," A chapter in The Springer Handbook of Nanotechnology, accepted April 2005. **(Includes contributions by Gerd K. Binnig, Winner of the 1986 Nobel Prize in Physics)**
35. **D. Ho***, D. Garcia, and C.M. Ho, "Using Advanced Nanomanufacturing and Characterization Modalities Towards the Realization of Bio-Nano-Informatics Systems," accepted to *Journal of Nanoscience and Nanotechnology*, 6 (4) , 1-17, 2006.
36. D. Ho*, A. Fung, and C.D. Montemagno, "Engineering Novel Diagnosis Modalities and Implantable Cytomimetic Nanomaterials for Next Generation Medicine," accepted to *Biology of Blood and Marrow Transplantation*, 12 (1), 92-99, 2006. **Invited Paper**
37. J. Xi, **D. Ho**, B. Chu, and C.D. Montemagno, "Lessons Learned From Engineering Biologically-Active Hybrid Nano/Micro-devices," *Advanced Functional Materials* 15 (8), 1233-1240, 2005. **Feature Article**
38. **D. Ho**, B. Chu, H. Lee, and C.D. Montemagno, "Protein-driven Energy Transduction Across Polymeric Biomembranes," *Nanotechnology* 15 (8), 1084-1094, 2004 **Article downloaded over 1000 times; top 10% of all Institute of Physics (IOP) Publications (Information as of July 2005); News Coverage in Nature (Nanozone) July 20, 2004. To Appear: Paper to be highlighted in Priority Paper Evaluation in Nanomedicine (Future Medicine), 2006**
39. **D. Ho**, B. Chu, J.J. Schmidt, J., Brooks, E., Montemagno, C.D., "Hybrid Protein/Polymer Biomimetic Membrane," *IEEE Trans. Nanotechnology*, 3 (2), 256-263, 2004.
40. **D. Ho***, B. Chu, H. Lee, E.K. Brooks, K. Kuo, and C.D. Montemagno, "Light-Dependent Current Generation Based on Coupled Protein Functionality," *Nanotechnology* 16 (12), 3120-3132, 2005. **Cover Article**
41. **D. Ho**, and C.D. Montemagno, "The Advent of Innovation-Societal Perspectives of the Integrative Nanotechnology Revolution," published online at Institute of Physics website, www.nanotechweb.org; published online, *Nanotechnology*, 2005.

*Corresponding Author

PEER-REVIEWED PROCEEDINGS MANUSCRIPTS
(EI Indexed Publications that are peer-reviewed by minimum of 2 referees with competitive acceptance rates often < 40% and published as Full Length Manuscripts)

Publication at Northwestern University

42. **D. Ho*** "Engineering Intelligent Materials for the Interrogation of Bio-robotic Architectures and Regulatory Networks." *IEEE Proc. IROS* 18 no. 2166 (2006).
43. **D. Ho***, E.Chow, and G. Cheng "Examination of Basal and Lipopolysaccharide-Induced Cellular Stress Response to Chemical and Topographical Stimuli from Biotic-Abiotic Functionalized Materials." *Bio-Nano-Information Fusion Proc.*, 2:1-4 (2006).
44. E. Chow, **D. Ho**, and G. Cheng "MEMS-based Detection and Evaluation of Distinct Immune Responses." *Bio-Nano-Information Fusion Proc.*, 2:5-8 (2006).
45. E. Chow, E. Pierstorff, G. Cheng, Y.C. Tai, and **D. Ho***, "Attenuation of Cellular Inflammation Using Glucocorticoid-Functionalized Copolymers." *Proc. IEEE-NEMS*, 2 (2006).
46. B. Chu, E. Pierstorff, and **D. Ho***, "Polymer-Enabled Carbon Nanotube Deposition for Cellular Interrogation Applications," *Proc. IEEE-NEMS*, 2, 1034-1038, (2006).
47. E. Pierstorff, and **D. Ho***, "A combinatorial approach of functionalizing copolymers with effector molecules that attenuate cyto-inflammatory responses at the biotic-abiotic interface," accepted to *Proc. Mat. Res. Soc.* 2007. Nominated by peer committee for outstanding presentation
48. G. Shah, E. Pierstorff, **D. Ho**, and C.J. Kim, "Meniscus-assisted magnetic bead trapping on EWOD-based digital microfluidics for specific protein localization," *Proc. Transducers*, 707-710, 2007.
49. Mike C. Liu, **D. Ho**, and Y.C. Tai, Monolithic 3-D Microfluidic Device for Cell Assay with an Integrated Combinatorial Mixer, Technical Digest, The 14th International Conference on Solid-State Sensors, Actuators and Microsystems (Transducers '07), Lyon, France, pp. 787-790, 2007.
50. E. Pierstorff, H. Huang, and D. Ho*, "Liver-x-receptor agonist Functionalized Nanomaterials for Discrete Cyto-Regulation," *Proc. IEEE-NANO*, 2007. **Selected as Oral Presentation**
51. H. Huang, E. Pierstorff, E. Osawa, and D. Ho*, "Functionalization of Detonation Nanodiamonds with Metformin and Doxorubicin for Combinatorial Drug Therapy," *Proc. IEEE-NANO*, 2007. **Selected as Oral Presentation**
52. M. Chen H. Huang, E. Pierstorff, E. Robinson, and D. Ho*, "Parylene-Encapsulated Copolymer Membranes for Localized and Controlled Anti-Inflammatory Release", *IEEE Nanomedicine*, 2007. **Selected as Oral Presentation**

53. E. Robinson, M. Chen, H. Huang, E. Pierstorff, and **D. Ho***, "Investigation of nanostructured parylene-induced cyto-regulatory network activation, *IEEE Nanomedicine*, 2007. *Selected as Oral Presentation*
54. E. Shin, S. Daram, S. Gupta, E. Pierstorff, and **D. Ho***, "Copolymer nanofilms as anti-adsorbent cellular substrates", *IEEE Nanomedicine*, 2007. **Selected as Oral Presentation**
55. B. Huang, F. Zhou, E. Pierstorff, and **D. Ho***, "Hybrid material-dependent dynamic cell adhesion" *IEEE Nanomedicine*, 2007. **Selected as Oral Presentation**
56. E. Pierstorff, M. Krucoff, and **D. Ho***, "Multifunctional biofunctional substrate technology for localized inflammation suppression and insulin release" *IEEE Nanomedicine*, 2007. **Selected as Oral Presentation**
57. H. Huang, E. Pierstorff, E. Osawa, and **D. Ho***, "Active Nanodiamond Hydrogels for Chemotherapeutic Delivery, *IEEE Nanomedicine*, 2007. **Selected as Oral Presentation**
58. E. Pierstorff and **D. Ho***, "Mimicry of Neural Membranes: Towards Bio-Active Substrates for Medical Diagnostics", *IEEE Nanomedicine*, 2007. **Selected as Oral Presentation**
59. M. Chen, B. Huang, E. Shin, E. Robinson, E. Pierstorff, H. Huang, and **D. Ho***, "Engineering Multifunctional Biologically-Amenable Nanomaterials for Interfacial Therapeutic Delivery and Substrate-Based Cellular Interrogation," *IEEE Proc. BIBE*, 2007. **Invited Manuscript-Only 65 full-length manuscripts selected from over 500 submissions, presented at Harvard University School of Medicine.**
60. V. Kapadia, H. Huang, E. Pierstorff, M. Chen, and **D. Ho***, "Magnetically-directed therapeutic elution using a novel multifunctional nanocarrier," accepted to *IEEE Proc. NEMS*, 2008. **Invited Manuscript**
61. E. Pierstorff, M. Krucoff, and **D. Ho***, "Preserved efficacy of doxorubicin-induced apoptosis via copolymeric elution," accepted to *IEEE Proc. NEMS*, 2008. **Invited Manuscript**
62. H. Huang, M. Chen, P. Bruno, R. Lam, D. Gruen, and **D. Ho***, "Hard Meets Soft: Collagen and Therapeutic-Functionalized Ultrananocrystalline Diamond Thin Films for Anti-inflammatory Implant Coating Applications," accepted to *Proc. Mat. Res. Soc.*, 2008.
63. H. Huang, E. Pierstorff, E. Osawa, and **D. Ho***, "Engineering a Targeted and pH-sensitive Nanodiamond Chemotherapeutic Delivery System," accepted to *Proc. Mat. Res. Soc.*, 2008. **Selected as Oral Presentation**
64. E. Pierstorff, M. Chen, E. Robinson, and **D. Ho***, "Parylene encapsulated copolymer nanofilm for directed and localized therapeutic delivery," accepted to *Proc. Mat. Res. Soc.*, 2008.
65. E. Pierstorff, M. Krucoff, M. Chen, and **D. Ho***, "Triblock Copolymer Based Platform for Multi-Physiological Targeting," submitted to *Proc. Mat. Res. Soc.*, 2008.
66. M. Liu, **D. Ho**, and Y.C. Tai, " A monolithically fabricated combinatorial mixer for microchip-based high-throughput cell culturing assays," *Proc. IEEE-NEMS*, 2, 1039-1043 (2006).

Publication Prior to Northwestern University

67. **D. Ho**, B. Chu, H. Lee, K. Kuo, E.K. Brooks, and C.D. Montemagno, "Light-Dependent Current Production Using Biofunctional ABA Triblock Copolymers," *Bio-Nano-Information Fusion*, Marina Del Rey, California, July 20, 2005.
68. **D. Ho**, B. Chu, H. Lee, K. Kuo, and C.D. Montemagno, "Coupled-Protein Functionality for Energy Conversion in Biomimetic Systems," accepted to *IEEE Robio Conference*, Hong Kong, June 28-July 3, 2005.
69. **D. Ho***, and Y. Chen, "Interfacing Cellular Systems with Abiotic Materials Using Composite Collagen-Block Copolymer Thin Films," *Bio-Nano-Information Fusion*, Marina Del Rey, California, July 20, 2005.
70. **D. Ho***, and Y. Chen, "Induction of Muscle Cell Alignment Using Copolymer-Collagen Type I Biofilms Possessing Relative Stiffness Gradients." *Proc. of the Mat. Res. Soc.* October 2005.
71. **D. Ho***, E. Chow, G. Cheng, and Y.C. Tai, "Dexamethasone-Triblock Copolymer Composites as Immune-Suppressing Materials for Enhancement of Implant Biocompatibility." *Proc. of the Mat. Res. Soc.* October 2005. **Selected by Symposium Chairman as Oral Presentation**
72. **D. Ho**, B. Chu, and C.D. Montemagno, "Nanoscale Hybrid Protein/Polymer Functionalized Devices," *Proc. SPIE Int. Soc. Opt. Eng.* 5389, 192 (2004)
73. **D. Ho**, B. Chu, K. Kuo, and C.D. Montemagno, "Functionalizing Biomimetic Membranes with Energy Transducing Proteins," *Proc. of the Mat. Res. Soc.* 823, W11.8.1-W11.8.6, 2004
74. **D. Ho**, B. Chu, H. Lee, K. Kuo, and C.D. Montemagno, "Fabrication of Hybrid Bionanodevices Based on Coupled Protein Functionality," *Proc. ASME NANO*, Pasadena, CA September 22-24, 2004
75. **D. Ho**, B. Chu, H. Lee, K. Kuo, and C.D. Montemagno, "Electrochemical Measurement of Coupled Protein Functionality Across Polymer Membranes," Accepted to *Proc. Electrochem. Soc.- Intl. Symp. on Nanoscale Devices, Materials, and Biological Systems: Fundamentals and Applications*, Vol. AH1, 2004
76. B. Chu, **D. Ho**, H. Lee, K. Kuo, and C.D. Montemagno, "Enhancing Proton Exchange Membrane Functionality with Biomolecules," Accepted to *Proc. Electrochem. Soc.- Intl. Symp. on Nanoscale Devices, Materials, and Biological Systems: Fundamentals and Applications*, Vol. AH1, 2004
77. B. Chu, **D. Ho**, H. Lee, K. Kuo, and C.D. Montemagno, "Protein-Functionalized Proton Exchange Membranes," *Proc. ASME NANO*, Pasadena, CA September 22-24, 2004
78. H. Lee, **D. Ho**, B. Chu, K. Kuo, and C.D. Montemagno, "Reconstituting Biomolecules into Artificial Membranes and Detection of their Activities," *Proc. ASME NANO*, Pasadena, CA September 22-24, 2004
79. H. Lee, **D. Ho**, B. Chu, K. Kuo, and C.D. Montemagno, "Membrane Proteins in Artificial Systems," Accepted to *Proc. Electrochem. Soc.- Intl. Symp. on Nanoscale Devices, Materials, and Biological Systems: Fundamentals and Applications*, Vol. AH1, 2004.

80. **D. Ho**, B. Chu, H. Lee, K. Kuo, and C.D. Montemagno, "Synthesis and Characterization of Biomolecular Hybrids as Energy Conversion Systems," *International Symposium on Environmental Nanotechnology 2004*, Taipei, Taiwan, December 1st, 2004.
81. **D. Ho**, J.J. Schmidt, and C.D. Montemagno, "Protein/Polymer Hybrid Biomimetic Valves," *Proceedings of the Materials Research Society*, 735 C.4.5.1-C.4.5.4 (2003)
82. **D. Ho**, and C.D. Montemagno, "Hybrid Protein/Polymer Biomimetic Membranes," *IEEE Proceedings on Nanotechnology* (1), 379–382, August 2003
83. H. Lee, **D. Ho**, J.J. Schmidt, and C.D. Montemagno, "Biosolar Powered Fabric," *IEEE Proceedings on Nanotechnology* (2), 733–736, August 2003
84. **D. Ho**, B. Chu, H. Lee, and C.D. Montemagno, "Directed Protein Adsorption by Site-specific Labeling," *IEEE Proceedings on Nanotechnology* (2), Special Paper Session Paper Suppl. 2003
85. J. Huang, A. Shalchi, **D. Ho**, Y.H. Zhang, E. McCabe, and C.M. Ho, "Rapid Bacterial Diagnosis-MEMS-based DNA Detection," *Pediatric Research* 51 (4) 1610 Part 2 Suppl. (2002)

BOOKS

1. Editor, *Nanodiamonds: Applications in Biology and Medicine*, Springer-Verlag, 2009 (in preparation)

PATENTS

1. Y. Chen, R. Sun, and **D. Ho**, "Micro/Nano Optical Detection Devices for Medical Applications," pending-UCLA 2005-732, 2005.
2. **D. Ho**, E. Pierstorff, E. Chow, G. Cheng, Y.C. Tai, "Anti-Inflammatory Polymer Nanofilms as Robust and Versatile Implant Coatings,"-NU27023 Patent Disclosure, 2007. US Prov. Patent 60/942,885 Filed June 8, 2007
3. H. Huang, **D. Ho**, and E. Osawa," Nanodiamond Hydrogels as Efficient and Biocompatible Trans-membrane Drug Carriers,"-NU27051 Patent Disclosure, 2007.
4. **D. Ho**, M. Chen, E. Robinson, and E. Pierstorff, "Active Parylene-Encapsulated Copolymeric Membranes (APC) for Post-Cardiovascular Surgery Suppression of Inflammation," NU patent disclosure 27095, 2007.
5. **D. Ho**, R. Lam, M. Chen, H. Huang, E. Osawa, "Parylene-Nanodiamond Hybrids as Patch Devices for Localized Therapeutic Delivery, " NU patent disclosure, 2008.
6. **D. Ho**, E. Robinson, E. Pierstorff, "Dix-A as a Platform Plastic Microfilm for Platform Drug Delivery, " NU patent disclosure, 2008.
7. **D. Ho**, H. Huang, E. Chow, and M. Bishop, "Nanodiamond-Chemotherapeutic Hybrids as Biocompatible Vehicles for Local Chemotherapy," NU patent disclosure, 2008.
8. **D. Ho**, K. Liu, R. Lam "Neuromimetic Polymeric Nanomembranes for Toxin Targeting," NU patent disclosure, 2008.

8. **D. Ho**, H. Huang, M.Chen, R. Lam, P. Bruno, Dieter Gruen, “Ultrananocrystalline Diamond Thin Films Functionalized with Therapeutically-Active Collagen Networks,” NU Patent disclosure, 2008.
9. **D. Ho**, E. Pierstorff, M. Chen, and R. Lam, “Nanodiamonds as Solubilizing Agents for Insoluble Therapeutics,” NU Patent Disclosure, 2008.
10. **D. Ho**, E. Pierstorff, and R. Lam, “Nanoscale Architectural Tuning of Parylene Patch Devices to Control Therapeutic Release Rates,” NU Patent Disclosure, 2008.

INVITED PRESENTATIONS

1. “Hybrid Nanotechnology”
Bionanotechnology: Academic and Industrial Partnerships in the UK and US
University of Southern California, June 10th, 2004
2. “Fabrication of Biomolecule-Copolymer Hybrids as Energy Conversion Systems” California Nanosystems Institute (CNSI) Invited Talk,
University of California, Santa Barbara, February 18, 2005
3. “Light-Dependent Current Generation from Biofunctionalized ABA Triblock Copolymers” Academia Sinica
Taipei, Taiwan, June 22, 2005.
4. “Realizing Cytomimicry Through Biotic-Abiotic Interfacing”
Keck Graduate Institute Special Seminar
Claremont, CA Nov. 3rd, 2005.
5. “Fabrication of Micro/Nano Systems Through Biotic-Abiotic Interfacing”
University of California, Santa Barbara
Santa Barbara, California, January 18th, 2006.
6. “Cytomimicry- Developing Biofunctional Materials Through Biotic-Abiotic Interfacing”
University of Florida
Gainesville, Florida, January 30th, 2006.
7. “Cytomimicry: Fabrication of Biofunctionalized Devices Through Biotic-Abiotic Interfacing”
The Ohio State University
Columbus, Ohio, February 28th, 2006.
8. “Fabrication of Micro/Nano Systems Through Biotic-Abiotic Interfacing”
Purdue University
West Lafayette, Indiana, March 2nd, 2006.
9. “Cytomimicry: Fabrication of Biofunctionalized Devices Through Biotic-Abiotic Interfacing”
University of California, Santa Cruz
Santa Cruz, California, March 6th, 2006.
10. “ Fabricating Hybrid Materials for Bioelectronic and Cellular Interrogation Technologies”
University of California, Santa Cruz
Santa Cruz, California, March 17th, 2006.

11. "Cytomimetic Materials For Biotic-Abiotic Interfacing"
University of Southern California
Los Angeles, California, March 21st, 2006
12. "Hybrid Materials for Bioelectronic and Cellular Interrogation Technologies"
Electrical Engineering Research Colloquium
University of California, Irvine, May 3rd, 2006.
13. "Nanobiotechnology and its Prospects for Healthcare and Medicine"
SCMJ Biotechnology Workshop
California Institute of Technology, August, 19th, 2006.
14. "Tailored Biology : Examination of Basal and Lipopolysaccharide-Induced Cellular Stress Response to Chemical and Topographical Stimuli from Biotic-Abiotic Functionalized Materials"
Peking University Department of Biomedical Engineering
Beijing, China, October 9th 2006.
15. "Functional Materials/Engineering Mechanics of Motor Proteins"
Association for Laboratory Automation Annual Meeting
Palm Springs, California, January 21st, 2006
16. "Nanoscale Characterization Modalities/Advanced Materials for Medical Applications"
Association for Laboratory Automation Annual Meeting
Palm Springs, California, January 26th, 2006
17. "Polymeric Nanofilms for Therapeutic Applications"
Mornings at McCormick-Featured Speaker
Evanston, Illinois, June 8, 2007.
18. "Micro/Nanotechnology and its Applications towards Biology and Medicine"
National Science Foundation Summer Institute
Los Angeles, California, July 16th, 2007
19. "Recent Advancements at the Intersection of Micro/Nanotechnology and Medicine"
Institute for Food Technologists Annual Meeting
Chicago, Illinois, July 28th, 2007
20. **INVITED SPEAKER-** "NANOSCALE AND MOLECULAR ENGINEERING FOR BIOMEDICAL APPLICATIONS- FUNDAMENTALS, TECHNOLOGY AND APPLICATIONS"
IEEE-NANO International Conference Workshop
Hong Kong, China, Aug. 2, 2007
21. **KEYNOTE PRESENTATION-** "Nanomaterial-Based Chemotherapeutic Delivery"
IEEE-Nanomedicine International Conference
Hong Kong, China, Aug.7, 2007
22. **INVITED TALK** "NanoCloak: Functionalized Nanomaterials for Cellular Interrogation and Nanoscale Medicine"
Biomedical Engineering Society National Meeting
Los Angeles, CA, 2007
23. **INVITED SPEAKER** "Invisible Drug Delivery Technologies for Targeted Chemotherapy"
James Franck Institute-University of Chicago Computations in Science Series
Chicago, IL 2007

24. **INVITED SPEAKER** “Targeted Chemotherapy via Multifunctionalized Bio-Amenable Platforms”
Bio-Nano-Info Integration for Personalized Medicine: IEEE BIBE Nanomedicine Workshop
Harvard Medical School, Boston, MA, 2007
25. Biotechnology Program Seminar
Northwestern University, Evanston, IL 2007
26. **EVENING KEYNOTE** “Crosstalk: It’s Not Just for Proteins and Pathways”
Applied Research Day Awards Dinner
Northwestern University, Evanston, IL 2007
27. “Multifunctional Nanomaterials at the Interface of Technology and Biology”
Nanomedicine/Nanotechnology SIG
National Institutes of Health (NIH)-NIAMS, 2007
28. “Multifunctional Materials at the Interface of Technology and Biology”
Engineering Science and Applied Math Colloquium
Northwestern University, Evanston, IL Dec. 3rd, 2007
29. “Advanced Devices Fabricated by the Coalescence of Technology and Biology”
National Science Foundation NCLT Seminar
National Center for Learning and Teaching, Northwestern University, Dec. 7th, 2007.
30. “Advanced Drug Delivery Empowered by Technology and Biology”
National Science Foundation SBE&S International Workshop
Institute for Innovative and Advanced Studies, National Cheng Kung University, Feb. 19, 2008.
31. “Nanomaterial-Enabled Translational Multitherapeutic Devices for Nanomedicine”
CESASC Symposium on Nano-Engineered Medicine
Los Angeles Airport Hilton, Los Angeles, April 26, 2008.
32. **SPECIAL SESSION INVITED SPEAKER**
“Engineering Carbon-Based Therapeutic Agents for Emboldened Treatment Efficacy”
IEEE NEMS Special Session on Nano-Engineered Therapeutics
Sanya, China, 2008.
33. **SPECIAL SESSION INVITED SPEAKER**
“Multifunctional Polymeric Nanofilms for Therapeutic Applications”
IEEE NEMS Special Session on Nano-Engineered Diagnostics
Sanya, China, 2008.
34. ***PLENARY SPEAKER*** “Applications of Nanodiamonds Toward Nanomedicine”
34th Fullerene-Nanotube Research International Meeting
Meijo University, Nagoya, Japan, 2008.
35. Panelist, “Biomaterials and Biotechnology”
Midwest Biomedical Engineering Council Annual Meeting
Illinois Institute of Technology, April 2008
36. “Nanocarbon-Based Microfilms for Targeted Drug Elution”
Johnson&Johnson-Ethicon

Somerville, New Jersey, April 7, 2008

37. “Transformative Drug Elution Via Nanodiamond Hydrogels”
Department of Bioengineering-The Ohio State University
Columbus, Ohio, April 16th, 2008
38. ***SPECIAL INVITED SPEAKER***
“Emboldened Chemotherapeutic Strategies Enabled by Nanodiamond Hydrogels”
Nanodiamond 2008
St. Petersburg, Russia, 2008.
39. ***SPECIAL INVITED SPEAKER***
“Nanodiamond-Based Microfilm Devices for Localized Multitherapeutic Delivery”
Diamond 2008
Barcelona, Spain, 2008.
40. “Nanodiamond-Based Materials at the Intersection of Technology and Drug Delivery”
IMEC-Biomaterials Symposium
Leuven, Belgium, 2008
41. ***KEYNOTE SPEAKER***
“Nanodiamonds as Foundational Matrices for Therapeutically Active Microfilm Devices”
IEEE Nanomedicine International Conference
Shanghai, China, 2008
42. “Nanodiamond-Enabled Patch Matrices for Sustained Multi-Drug Elution”
Department of Engineering Science and Mechanics
Penn State University, October 2008
43. “Nanomedicine and Nanodiamonds: Transformative Systemic and Localized Therapeutics”
Institute for Atomic and Molecular Sciences
Academia Sinica, December 2008

INTERNATIONAL AND NATIONAL CONFERENCE PRESENTATIONS

1. **D. Ho**, J.J. Schmidt, E.K. Brooks, and C.D. Montemagno, Engineering Pore Proteins as Nanoscale Microfluidic Valves, *NM2- Conference on Molecular Mechanics*, **Scholarship Recipient**, Poster Presentation, Maui, HI, May 12-17, 2002
2. **D. Ho**, J.J. Schmidt, E.K. Brooks, and C.D. Montemagno, Engineering Pore Proteins as Nanoscale Microfluidic Valves, *California Nanosystems Institute (CNSI) Poster Symposium*, 2002
3. **D. Ho**, B. Chu, J.J. Schmidt, E.K. Brooks, and C.D. Montemagno, “Engineering Pore Proteins as Nanoscale Macromolecule Sensors”, University of California Systemwide Bioengineering Symposium, San Diego, CA, June 21-23, 2003. **Best Poster Presentation Award Winner**
4. **D. Ho**, B. Chu, and C.D. Montemagno, “Nanoscale Hybrid Protein/Polymer Functionalized Devices,” SPIE Meeting on BioMEMS and Nanotechnology. March 2004.
5. **D. Ho**, B. Chu, H. Lee, and C.D. Montemagno, Functionalizing Nanoscale Polymeric Biomimetic Membranes with Energy Transduction Proteins, *CESASC Annual Convention*, May 22, 2004.

6. **D. Ho**, B. Chu, H. Lee, and C.D. Montemagno, "Synthesis and Characterization of Biomolecule-Copolymer Hybrids as Energy Conversion Systems," *CESASC Annual Convention*, April 22, 2005.
7. A.O. Fung, G. Villareal, D.L. Glanzman, **D. Ho***, and Y. Chen, "Neurite response to micro/nano-patterned topographical and biochemical cues," *Society for Neuroscience Meeting*, October 14, 2006. *Corresponding Author.
8. E. Pierstorff, E. Chow, G. Cheng, and **D. Ho***, "Anti-inflammatory Polymer Nanofilms as Robust and Versatile Implant Coatings," Northwestern University Applied Research Poster, Feb. 21, 2007.
9. H. Huang, E. Pierstorff, and **D. Ho***, "Exploration of Nanodiamonds in Biomedical Applications: Chemotherapeutic Delivery and Anti-inflammatory Implant Coatings," Robert H. Lurie Comprehensive Cancer Center Poster Session, June 13, 2007.
10. H. Huang, E. Pierstorff, E. Osawa, and **D. Ho***, "Functionalized Nanodiamond Hydrogels as Platform Therapeutic Delivery Systems," *Proc. BMES National Meeting*, 2007. **Katten Muchin Rosenman Travel Scholarship Awarded to H. Huang from Lurie Comprehensive Cancer Center.**

RESEARCH SUPPORT

- **National Institutes of Health (National Institute of Allergy and Infectious Disease)**
- **National Science Foundation**
- **Wallace H. Coulter Foundation Early Career Award in Translational Research**
- **V Foundation for Cancer Research Scholar Award**
- **Avon Foundation for Cancer Research**
- **American Chemical Society**

NEWS COVERAGE

National Geographic Channel 'Known Universe' Television Program

- **Nanodiamonds and Nanodiamond Microfilm technologies pioneered by Prof. Ho will be featured in Fall 2009 on the National Geographic Channel**
- **Program will include interview with Prof. Dean Ho pertaining to the impact of Nanotechnology on Medicine and the treatment of cancer**

V Foundation for Cancer Research V Scholars Award

- **Foundation Press Release**
<http://www.jimmyv.org/news.cfm?newsid=278>

Nanodiamonds for Drug Delivery (Partial list of > 100 international news outlets)

- **CNN Homepage (CNN.com)-"Nanodiamonds Delivering Drugs" October 19th, 2007**
<http://64.236.24.12/2007/TECH/science/10/19/nanodiamonds.drugs/index.html>
- **United Press International (UPI.com)-"Nanodiamonds Delivery Chemo Drugs" October 15th, 2007**

http://www.upi.com/NewsTrack/Science/2007/10/15/study_nanodiamonds_deliver_chemo_drugs/6071/

- **Popular Science-“ Nanodiamonds Delivering Drugs” October 19th, 2007**
<http://popsci.typepad.com/popsci/2007/10/nanodiamonds-de.html>
- **National Cancer Institute-NCI Alliance for Nanotechnology in Cancer October 31, 2007**
http://nano.cancer.gov/news_center/2007/oct/nanotech_news_2007-10-31d.asp
- **NSTI.org-“U.S. Researchers Show Nanodiamonds Are Ideal For Effective Drug Delivery” October 18, 2007**
<http://nrc.org/news/breaking.html?id=231>
- **Cancer Research UK-“Nanodiamonds Show Potential for Cancer Drug Delivery” October 16th, 2007**
<http://info.cancerresearchuk.org/news/archive/newsarchive/2007/october/18319004>
- **Yahoo-India-“Nanodiamonds Offer Safer, Effective Drug Delivery System” October 14th, 2007**
<http://in.news.yahoo.com/071014/139/6lwzb.html>
- **ScienceDaily-“Nanoengineers Mine Tiny Diamonds for Drug Delivery” October 15th, 2007**
<http://www.sciencedaily.com/releases/2007/10/071012160140.htm>
- **Nanodiamond paper received press coverage on over 100 websites and news stories by multiple international publications including ‘Scitizen’ and ‘Science et vie’.**

Polymeric Nanofilms For Controlled Drug Elution (Partial list of > 50 international news outlets)

- **USA Today**
<http://www.healthscout.com/news/68/8017992/main.html>
- **Chicago Tribune**
http://www.chicagotribune.com/business/chi-mon_notebook_0128jan28_0_4568148.story
- **Science Daily**
<http://www.sciencedaily.com/releases/2008/01/080122110045.htm>
- **Physorg**
<http://www.physorg.com/news120219999.html>
- **Drug Discovery News**
<http://www.drugdiscoverynews.com/index.php?newsarticle=1969>

Polymeric Biomembranes for Energy

“Protein pump provides proton power,” *Nature* (Nanozone), July 8, 2004

“Protein reverses problem of leakage,” *MICRO/NANO*, 9 (8), p.2, August 2004.

TEACHING EXPERIENCE

University of California, Los Angeles-Graduate Level

Teaching Assistant, Dept. of Bioengineering Fall 2003

Cell Biology of Motor Proteins:

Provided class lectures, developed course structure, testing protocol

Northwestern University

Instructor

Biomedical Engineering 344

Biological Performance of Materials; Development of laboratory and curriculum for undergraduate and graduate level course pertaining to interface of biology with micro/nanofabricated technology, as well as biomedical materials. Students were comprised of mostly senior Biomedical Engineering undergraduates and first-year Biomedical Engineering M.S. and Ph.D. students.

Mechanical Engineering 385

Nanotechnology; This course addressed a spectrum of principles and emerging developments in the field of nanotechnology as it pertained to sensing, actuation, materials, device, and medicine. Students were comprised of freshman-senior Mechanical, Chemical and Biomedical Engineering undergraduates and first-year and second-year Mechanical Engineering, Biomedical Engineering, and Materials Science and Engineering M.S. and Ph.D. students.

Short courses

Instructor

Association for Laboratory Automation

Introduction to Nanobiotechnology, January 2006

Instructor

Association for Laboratory Automation

Introduction to Nanobiotechnology, January 2007

Lead Instructor

National Science Foundation Summer Institute

Micro/Nanotechnology for Applications in Biology and Medicine, July 2007

Instructor

Association for Laboratory Automation

Introduction to Nanobiotechnology, January 2008

Instructor

Association for Laboratory Automation

Introduction to Nanobiotechnology, January 2009

PROFESSIONAL SERVICES

Editorships

Associate Editor, Journal of Experimental and Applied Nanomedicine

Associate Editor, Journal of Biomedical Nanotechnology

Associate Editor, Advanced Science Letters
Focus Section Editor, IEEE Nanotechnology Magazine
Guest Editor, IEEE Nanotechnology Magazine-Nanoscale Medicine Focus
Guest Editor, Journal of the Association for Laboratory Automation
Associate Editor, Journal of Nanotechnology Law and Business
Editor, Associate Editor - UCLA Scientific Review, 2004-2005
Editor, CESASC Technical Symposium Proceedings, 2005

Reviewing

Funding Programs/Panels

National Institutes of Health Panel-Nanotechnology in Biology and Medicine
Nanomanufacturing Panel-National Science Foundation
ARL/ARO 2007 Chemical and Biological Defense Basic Research Program
Air Force Office of Scientific Research

Journals/Scholarly Publications

Nanotechnology
Journal of Biomedical Optics
Journal of Micromechanics and Microengineering
Sensors and Actuators A: Physical
Journal of Nanoscience and Nanotechnology
Nano Letters
Artech House Book Proposal- Engineering in Medicine and Biology
Faculty Review Board, Northwestern University Undergraduate Research Journal
Journal of Microelectromechanical Systems (JMEMS)
Smart Materials and Structures
MRS Bulletin
Journal of Applied Physics
Applied Physics Letters
Nanomedicine
Pediatric Research
Thin Solid Films
Journal of Nanotechnology Law and Business
Journal of Biomedical Nanotechnology
Journal of the American Chemical Society
ACS Nano
Journal of Controlled Release
Angewandte Chemie Int'l. Ed.

Committee Memberships

Co-Chairman, CESASC Technical Symposium, 2005
Co-Chairman, CESASC Technical Symposium Poster Session, 2006
Co-Chairman, SCMJ-Caltech Biotechnology Workshop, August 19, 2006 Caltech
Member, Technical Program Committee, IEEE NEMS International Conference, 2007
Member, Technical Program Committee, IEEE NANO International Conference, 2007
Member, Awards Committee, IEEE NEMS International Conference, 2007
Member, Technical Program Committee, IEEE NEMS International Conference, 2008
Co-Chairman, Medical Micro/Nanotechnology Workshop, IEEE-NANO International Conference, 2007
Track Co-Chair, Micro/nano systems track, ASME IMECE Congress, Seattle, WA 2007
Member, Chinese International NEMS Network
Lead Instructor, National Science Foundation Summer Institute on Nanomechanics and Materials, 2007
Chairman, Invited Session, IEEE-NEMS 2008

Chairman, Nano-Engineered Medicine Symposium, CESASC Annual Convention, 2008
Co-Chairman, Invited Session, IEEE-NEMS 2009
Member, Technical Program Committee, IEEE NEMS International Conference, 2009

University Committee Memberships

Northwestern University Faculty Committees

MD-PhD Admissions Committee Member (Medical Scientist Training Program-MSTP)
Engineering Life Sciences (ELS) Building Committee
Coordinator-Mechanical Engineering Department Seminar

PROFESSIONAL EXPERIENCE

May 2007- Present

Chief Scientific Officer, Co-Founder, Biotic Laboratories, Inc., Culver City, CA

- *As of July of 2008 Biotic Laboratories is capitalized and operating out of 8,000 sq. ft. facility with full-time employees in place performing basic R&D as well as translational development.*
- Developed NanoCloak and Promeric technologies for implant coatings and standalone drug delivery devices-Collaborators include faculty and researchers from the UCSF School of Medicine, UCLA School of Medicine, and Northwestern University
- Platform drug delivery system capable of 'cloaking' implants, demonstrated in *in vivo* model/pre-clinical trials of inflammation suppression completed
- Development of partnerships with government agencies and industry leaders for technology development
- www.bioticlabs.com

January 2008-Present

Managing Partner, Co-Founder, Novelle Labs, San Francisco, CA

- Emerging startup for transdermal elution technologies
- Developing patch adhesive for wound healing and dermal therapeutics
- Micro/nanofilm localized dermal repair strategies being commercialized

January 2005-January 2006

Consultant, Biosolar Energia, Inc., Los Angeles, CA

- Demonstrated core company technology during doctoral studies (lead author)
- Acquired seed capital from one of Europe's largest energy conglomerates

January 2000-2001

Director-at-Large, Board of Directors, University Camps, Inc., Los Angeles, CA

- Only student member during term to serve on board of directors of 70 year-old UCLA philanthropy
- Board honorary chairman, Los Angeles District Attorney, Gil Garcetti. Members: John Wooden, Peter J. Taylor, Albert Carnesale, Jamaal Wilkes
-

PROFESSIONAL MEMBERSHIPS

Materials Research Society
Institute of Electrical and Electronics Engineers, Inc. (IEEE)
American Society of Mechanical Engineers (ASME)
Society for Optical Engineering (SPIE)
American Association for the Advancement of Science (AAAS)

Member, Biomedical Engineering Society (Elected)
Founding Member, American Academy of Nanomedicine
Member, Society for Neuroscience
Full Member, Sigma Xi Research Society (Elected)

COMMUNITY SERVICE AND ACTIVITIES

President, Vice President - UCLA Interfraternity Council, 2000-2002
President - UCLA Pi Kappa Phi Fraternity (2 year term), 1998-2000
External Vice President-UCLA Engineering Graduate Students Association, 2002-2003
Co-Founder- First Annual UCLA Dance Marathon, 2001
UCLA Unicamp Head Counselor and WALL advisor, 1998-Present
Member – Chancellor’s Service Award Selection Committee, 2001
Member-Northwestern University Fraternity and Sorority Advisory Board
Mentor-Northwestern University INNUVATION Venture Challenge Team-BioticLabs
Member-Northwestern University Hearing and Appeals System Board
Member-Advisory Board, Northwestern University INNUVATION Applied Research Day

STUDENT AND POSTDOCTORAL ADVISEES

Postdoctoral Researchers

Erik Pierstorff, Ph.D. (*Founder-Biotic Laboratories*)
Houjin Huang, Ph.D.
Xueqing Zhang, Ph.D.

Graduate Students

Erik Robinson
Brian Lam
Robert Lam
Karen Liu
Rafael Shimkunas
Sonia Wu
Jessica Lee
Justin Derbas

Undergraduate Students

Himanshu Aggarwal
Brian Huang^{1,3} (Northwestern University Graduate School)
Michael Awadalla
Vishal Kapadia^{1,3}
Shirley Bochman
Kunj Sheth (Northwestern University School of Medicine)
Jenni Boswell (Abbott Laboratories)
Eric Shin^{1,3} (Indiana University School of Medicine)
Mark Chen^{1,2,4}
Max Krucoff¹
Shiva Daram³
Suraj Gupta¹ (Northwestern University School of Medicine)
Justin Derbas (Northwestern University Graduate School)
Liang Xiang (Northwestern University Graduate School)
Karthik Garapati³
Frank Zhou (Air Force Research Laboratories)

Rebecca Hoo
Nathan Stackhouse
Ryan Whitfield
Stephen Lu
John Luethner¹
Siby Samuel¹
Brandon Yim

High School Students

Gautham Oroskar

¹ Undergraduate who is lead author or co-author of peer-reviewed manuscript

² Awarded major funding from Associate Provost and Associate Dean of Weinberg College for conference fellowship

³ Awarded McCormick Corporate Partners Research Grant

⁴ Northwestern University Undergraduate Research Award