

**David K. Mills, Ph.D.**  
**Professor and Director**  
**Biological Sciences and Institute for Micromanufacturing**

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Biological Sciences/Institute for Micromanufacturing  
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**Professional Interests**

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Designing novel and dynamic nanofilms (biodegradable, bioactive, micropatterned) for cell adhesion, differentiation and functionality; nanoassembly for dental & orthopedic implants; layer-by-layer assembly for cell encapsulation; application of nanoscale topographic and chemical cues for controlling chondro- and osteogenesis; understanding complex soft tissue modeling during development and remodeling in response to altered joint mechanics; structure-function relationships in TMJ soft tissues, engineering tissues for TMJ repair or replacement; and K-16 education, K-12 outreach, and research partnerships.

**Education and Training**

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| 1992-1993 | <b>Research Associate in Oral Biology</b><br><i>University of Illinois Medical Center, Chicago, Illinois</i>  |
| 1990-1993 | <b>Postdoctoral Fellowship in Cell Biology &amp; Anatomy</b><br><i>The Chicago Medical School, North Chicago, Illinois</i>  |
| 1990      | <b>PhD in Anatomy &amp; Cell Biology</b><br><i>University of Illinois Medical Center, Chicago, Illinois</i><br>Dissertation Title: Structure, Function & Dysfunction in the TMJ Disc<br><u>Advisor:</u> Dr. Jon Daniel, Histology Department<br><u>Co- Advisor:</u> Dr. Robert Scapino, Oral Anatomy Department |
| 1983      | <b>MA in Biological Anthropology</b><br><i>University of Illinois at Chicago, Chicago, Illinois</i><br>Thesis Title: Phyletic Position of <u>Cebupithecia sarmientoi</u> , a mid-Miocene Platyrrhine Primate Fossil from Columbia   |
| 1976      | <b>BA in History &amp; Classical Civilization (Double Major)</b><br><i>Indiana University, Bloomington, Indiana</i>   |

**Administrative Experience**

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| 2008-Present | <b>Director</b><br>CATALYST, Center For Applied Teaching and Learning to Yield Scientific Thinking<br>Serves as a regional center that maximizes educational resources of the region by promoting communication and collaboration, disseminating information on educational and research |
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opportunities and programs, and offers a comprehensive menu of research based programs and activities.

*Louisiana Tech University, Ruston, Louisiana*

**Responsibilities:** Provide professional development and leadership programs, develop support and resources for school systems and universities, service learning and community research programs, research opportunities for K-12 teachers and students and University undergraduate and graduate students, develop workforce development materials, develop funding resources for education and outreach programs, write progress and evaluation reports, and dissemination of Center's activities through publications and presentations.

2001-2004

**Director**

School of Biological Sciences

*Louisiana Tech University, Ruston, Louisiana*

**Responsibilities:** Provided leadership for academic programs serving 600 graduate and undergraduate students; coordinated work of 22 full- and part-time faculty and staff; planned and successfully managed \$2 million budget; Responsible for Board of Regents, NCAA, SACS & University assessment, departmental self-evaluation, faculty & staff recruitment, development & retention, strategic planning, coordinating and supporting institutional strategic planning, long and short term planning, budget development, management & planning, faculty review & mentoring, curriculum development, developing learning outcomes, student assessment, & publicity

2000-2001

**Interim Director**

School of Biological Sciences

*Louisiana Tech University, Ruston, Louisiana*

**Responsibilities:** Provided leadership for academic programs serving 560 graduate and undergraduate students; coordinated work of 20 full- and part-time faculty and staff; planned and successfully managed \$1.8 million budget; responsible for Board of Regents, NCAA, SACS & University assessment, departmental self-evaluation, faculty & staff recruitment, development & retention, strategic planning, coordinating and supporting institutional strategic planning, long and short term planning, budget development, management & planning, faculty review & mentoring, curriculum development, developing learning outcomes, student assessment, & publicity

### **Academic and Research Experience**

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2008- present

**Faculty Member, CyBERS (Center for Biomedical Engineering and Rehabilitation Sciences), College of Engineering & Science**  
*Louisiana Tech University, Ruston, Louisiana*

2006-present

**Professor (joint faculty appointment)**  
*School of Biological Sciences, College of Applied & Natural Sciences/  
Institute for Micromanufacturing, College of Engineering & Science  
Louisiana Tech University, Ruston, Louisiana*

2005-present

**Marvin T. Green Sr. Endowed Professor in Pre-Medicine**  
*School of Biological Sciences, College of Applied & Natural Sciences/  
Institute for Micromanufacturing, College of Engineering & Science*

*Louisiana Tech University, Ruston, Louisiana*

2004-2006      **Associate Professor (joint faculty appointment)**  
*School of Biological Sciences, College of Applied & Natural Sciences/  
 Institute for Micromanufacturing, College of Engineering & Science  
 Louisiana Tech University, Ruston, Louisiana*

2000-2004      **Associate Professor**  
*School of Biological Sciences  
 Louisiana Tech University, Ruston, Louisiana*

1998-2008      **Faculty Associate**  
*Biomedical Engineering Program, College of Engineering & Science  
 Louisiana Tech University, Ruston, Louisiana*

1994-2000      **Assistant Professor**  
*School of Biological Sciences, College of Applied & Natural Sciences  
 Louisiana Tech University, Ruston, Louisiana*

1993-1994      **Visiting Assistant Professor**  
*Department of Anthropology  
 Indiana University Northwest, Gary, Indiana*

1990-1993      **Adjunct Assistant Professor**  
*Department of Anthropology and Sociology  
 Indiana University Northwest, Gary, Indiana*

1991-1994      **Research Associate**  
*Department of Oral Biology  
 University of Illinois Medical Center, Chicago, Illinois*

1989-1992      **Postdoctoral Fellow**  
*Department of Cell Biology & Anatomy  
 Chicago Medical School, North Chicago, Illinois*

1983-1993      **Adjunct Professor**  
*Health Arts Program  
 College of St. Francis, Joliet, Illinois*

1987-1989      **Instructor**  
*Department of Histology  
 University of Illinois Medical Center, Chicago, Illinois*

1980-1989      **Guest Lecturer**  
*Department of Behavioral Sciences  
 Purdue University Calumet, Hammond, Indiana*

1984-1989      **Teaching Assistant**  
*Department of Oral Anatomy & Histology  
 University of Illinois at Chicago, Chicago, Illinois*

1983-1984      **Instructor**

*Department of Oral Anatomy  
University of Illinois Medical Center, Chicago, Illinois*

1981-1982                      **Teaching Assistant**

*Department of Anthropology  
University of Illinois at Chicago, Chicago, Illinois*

**Other Academic and Research Experience (Louisiana Tech University)**

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2007-present              **Project Director, Shell nanoSCIENCE Program**

The Shell nanoSCIENCE program is part of the Louisiana Outreach Project, two regional collaboratives that include LSU-Baton Rouge and Southern University and Grambling State University and Louisiana Tech University funded through the Shell-Texas Regional Collaboratives Partnership. The program's goal is to prepare teachers with the content and pedagogical knowledge, infrastructure and support that will allow them to engage their students in challenging hands-on activities and investigations focused on nanotechnology and so be encouraged to extend their education and pursue STEM careers.

2007-present              **Cell Culture Facility Director, Biomedical Engineering Building** planning, coordination of equipment purchases, training, protocols and procedures, developed lab into a Biosafety Level (BSL) II facility.

2004-present              **Biotechnology Thrust Leader, Institute for Micromanufacturing Responsibilities:** The Institute's activities are vested in five main research and development Thrust Areas: Nanotechnology, Biotechnology, Biomedical Nanotechnology, Environmental Technology, and Information Technology. As the Biotechnology Thrust Leader, my role is to aid in the development, planning, and coordination of efforts within and across the thrust areas including strategic planning, resource development, budgeting, faculty development and mentoring, and infrastructure improvement.

2002-present              **Governor's Biotechnology Initiative, GBI Leadership Team**  
**Responsibilities:** student and faculty mentoring, resource development, budgeting, and oversight of mini-grant program.

2002-present              **Institute for Micromanufacturing (IFM) Leadership Team**  
**Responsibilities:** student professional development, assessment, faculty & staff recruitment, long and short term planning, budget development & management, equipment & facilities development & management, community relations, and publicity

2002-present              **Member, Molecular Science and Nanotechnology (MSNT)**  
**Coordinating Council**  
**Responsibilities:** curriculum development, student recruitment & selection, long & short term planning, and development of policies & procedures

2002-present              **P<sup>3</sup> Leadership Team, School of Biological Sciences**  
**Responsibilities:** SWOT analysis, strategic planning, curriculum development, student recruitment, long & short term planning, policies & procedures, faculty recruitment

2001-2005                      **Member, CyBERS Planning Team**

**Responsibilities:** curriculum development, student recruitment, long & short term planning, policies & procedures, faculty recruitment

### **Other Work Experience**

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1979-1980

#### **Manager**

Woodmar Shopping Center, Hammond, Indiana

*Landau & Heyman Corporation, Chicago, Illinois*

**Responsibilities:** Retail development, administration of office, buildings, grounds & security staff, community relations, long and short term planning, budget development & management, community relations, mall development, and publicity

1976-1979

#### **Store Manager**

Kresge #65, Racine, Wisconsin; Kresge #180, Chicago, Illinois; K-Mart

#102, Hammond, Indiana

*K-Mart Corporation, Troy, Michigan*

**Responsibilities:** Retail sales, administration of office, buildings, grounds, & security staff, long and short term planning, budget development & management, employee training, marketing, tenant relations, and publicity.

### **Consulting Activities**

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Paun, A. 2005 NSF EMT grant, assistance with biological understanding for modeling of signal transduction pathways: P Systems

### **Mentoring Activities**

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Sethi, P. 2008 Microarray Gene Expression Biclustering using Associative Pattern Mining," Louisiana Biomedical Research Network (LBRN) Pilot Project, assistance with biological understanding of target genes.

Beck, M. 2007-2008 Postdoctoral Fellow at North Carolina State, Chapel Hill, NC. (MentorNet)

New

### **Professional Affiliations**

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American/International Association for Dental Research

American Association of Anatomists

Academic Association for the Advancement of Science

Biomedical Engineering Society

Biomaterials Society

Sigma Xi

Tissue Engineering Society

### **Honors and Awards**

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#### **University Awards**

*Appointed to the Academic Excellence Advisory Council*, Louisiana Tech University, 2008

*Foundation Professorship Award*, Louisiana Tech University Foundation, 2008

*Nominee*, College of Applied & Natural Sciences, Louisiana Tech University Foundation Professorship Award, 2007

*Outstanding Researcher*, College of Applied & Natural Sciences, Louisiana Tech University, 2007  
*Outstanding Teaching/Director of Research Award*, College of Applied & Natural Sciences, Louisiana Tech University, 2007  
*Outstanding Researcher*, College of Applied & Natural Sciences, Louisiana Tech University, 2005  
*Outstanding Teaching/Director of Research Award*, College of Applied & Natural Sciences, Louisiana Tech University, 2005  
*Outstanding Researcher*, College of Applied & Natural Sciences, Louisiana Tech University, 2004  
*Outstanding Researcher*, College of Applied & Natural Sciences, Louisiana Tech University, 2003  
*Service to the College Award*, College of Engineering and Science, Louisiana Tech University, 2003  
*Nominee*, College of Applied & Natural Sciences, Louisiana Tech University Foundation Professorship Award, 2002  
*Nominee*, College of Applied & Natural Sciences, Louisiana Tech University Foundation Professorship Award, 2001  
*Outstanding Researcher*, College of Applied & Natural Sciences, Louisiana Tech University, 2000  
*Outstanding Director of Undergraduate Research*, College of Applied & Natural Sciences, Louisiana Tech University, 2000  
*Outstanding Teaching/Director of Research Award*, College of Applied & Natural Sciences, Louisiana Tech University, 1999  
*Outstanding Researcher*, College of Applied & Natural Sciences, Louisiana Tech University, 1999  
*Finalist* "Excellence in Teaching Award", Indiana University Northwest, 1993

#### **Awards from Societies/Organizations**

*Election to Omicron Delta Kappa*, National Leadership Society, 2003  
*Nominee*, Advisor of the Year Award, Louisiana Tech Student Government Association, 2000  
*Teacher of the Quarter*, Alpha Epsilon Delta, Inaugural Selection, 1998  
*Election to Sigma Xi*, the Scientific Research Society, 1990  
*Certificate of Merit*, Polish Dental Arts Club of Chicago, 1989  
*Best Poster*, Society of Oral and Maxillofacial Surgeons Meeting, 1989  
*First Place*, Annual Clinic Day Research Competition, University of Illinois at Chicago, 1988  
*First Place*, Student Research Competition University of Illinois at Chicago, 1988  
*Second Place*, Student Research Competition, University of Illinois at Chicago, 1987  
*Doctoral Research Fellowship*, University of Illinois at Chicago, 1983-90  
*Masters Research Fellowship*, University of Illinois at Chicago, 1982-83

#### **Awards and Honors - BioMorPH Lab Students**

- Sharon Ronald (MS, 2008), Best Graduate Student Presentation, Louisiana Tech Research Symposium
- Shilpa Edugapati, (MS, 2007) Graduate Student Presentation, 1<sup>st</sup> Place Nanoassembly, Louisiana Material Science Conference
- Shashi Sriram (MS, 2006), Best Graduate Student Presentation, Louisiana Tech Research Symposium
- Amber Doss (MS, 2004), Outstanding Graduate Student Award, College of Applied & Natural Sciences

- Amber Doss (MS, 2003), Best Graduate Student Poster, College of Applied & Natural Sciences Research Symposium
- Amber Doss (MS, 2003), Best Graduate Student Presentation, Louisiana Tech University Symposium
- Lisa White (MS, 2003), Best Graduate Student Poster, College of Applied & Natural Sciences Research Symposium
- Chelsea Tyler (BA, 2003): Best Undergraduate Student Poster, College of Applied & Natural Sciences Research Symposium
- Hua Ai (Ph.D., 2000): Coating Poly-D-Lysine Nano-films on PDMS for Endothelial Cell Adhesion.) 1<sup>st</sup> Place, Institute for Biological Engineering Annual meeting, Best Poster

#### **Student Research Grants**

- LaQuartre Rhodes (MS, 2009), College of Applied & Natural Sciences Graduate Research Grant
- Tara Calhoun (MS, 2009), College of Applied & Natural Sciences Graduate Research Grant
- Prashant Yarlagadda (MS, 2009), College of Applied & Natural Sciences Graduate Research Grant
- Shraddha Patel (MS, 2009), College of Applied & Natural Sciences Graduate Research Grant
- Krithika Nagarajan (MS, 2009), College of Applied & Natural Sciences Graduate Research Grant
- Ravi Nandagiri (MS, 2008), College of Applied & Natural Sciences Graduate Research Grant
- Stephanie VanHoof (MS, 2007), College of Applied & Natural Sciences Graduate Research Grant
- Shahi Sriram (MS, 2006), Sigma Xi Graduate Student Research Award
- Amy Collinsworth (MS, 2004), College of Applied & Natural Sciences Graduate Research Grant
- Michael Cimino (BS, 2004), College of Applied & Natural Sciences Undergraduate Research Grant
- Amy Collinsworth (MS, 2004), College of Applied & Natural Sciences Graduate Research Grant
- Sonya Kosecheta (MS, 1986), Sigma Xi Graduate Student Research Award

#### **Selected Recent Research Recognition in Local & State Newspapers, TV, & Web Sites**

- <http://www.latech.edu/technews/viewnews.cgi?category=1&id=1223327849>
- <http://www.thenewsstar.com/apps/pbcs.dll/article?AID=/20080122/UPDATES01/801>
- <http://www.latech.edu/technews/viewnews.cgi?category=1&id=1201010787>
- <http://www.shreveporttimes.com/apps/pbcs.dll/article?AID=/20080113/NEWS01/801130325/1060/NEWS01>
- <http://www.latech.edu/technews/viewnews.cgi?category=1&id=1211065432>
- <http://www.latech.edu/technews/viewnews.cgi?category=1&id=1217512417>
- <http://www.latech.edu/technews/newshome.cgi>
- <http://www.TheNewsStar.com/apps/pbcs.dll/article?AID=/200808030115/NEWS01/808030325>

#### **Professional Development**

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##### **Grant Writing Seminars or Workshops**

- Grantsmanship Workshop (1994) *Annual Meeting American Association for Dental Research*, San Antonio, TX.
- Grant Writing Workshop (1995), *Graduate Studies and Research*, Northeast Louisiana University, Monroe, LA.
- Louisiana Tech University, (1996) *ANS Faculty Development Grant Workshop*, Ruston, LA.
- Louisiana Tech University, (1997) *North Louisiana Grant Writing Workshop*, Ruston, LA.
- National Science Foundation, (2006) *NSF Grant Writers Workshop*, Arlington, LA.

- Louisiana Tech University, (2007) *Grant Management Workshop*, Ruston, LA.
- American Association for the Advancement of Science annual meeting, (2008) Boston, MA.
  - Scientists Partnering with Educations: Why and How?
  - Communicating Science: Tools for Scientists and Engineers

### **Undergraduate Enhancement Programs Attended**

- Annual meeting of the International and American Associations for Dental Research, Sponsored Program, (1994) *New Trends in Biology Education*, Seattle, Washington
- LaSIP *Inquiry-Based Learning Conference*, (1996) Baton Rouge, Louisiana
- LaSIP Sponsored, *Designing and Running Investigative Labs*, (1997) Louisiana Tech University
- LaSIP Sponsored, *Inquiry-Based Learning in Large Lecture Classes*, (1998) Louisiana Tech University
- Project Kaleidoscope, (1997) *Enhancing Learning Centered Environments: The Biology Department of the Future*, Madison, Wisconsin.
- Annual meeting of the Society for In-Vitro Biology Sponsored Program, (1999) *Special Education Seminar*, New Orleans, Louisiana
- Project Kaleidoscope, (1999) *Building and Sustaining an Undergraduate Research Program*, Tucson, Arizona.
- Project Kaleidoscope, (2001) *The Future of Environmental Science*, Portland, Oregon.

### **K-12 Outreach Programs Attended**

- 2009 "Engineering GK-12 Grantees NSF Workshop (TeachEngineering), January 26-27, 2009, University of Colorado at Boulder.
- 2009 "NSF Engineering Education Awardees Conference", February 1-3, 2009, Reston, Virginia.
- 2008 "Texas Regional Collaboratives", 14<sup>th</sup> annual meeting, Austin, TX
- 2008 "Public Science Day", AAAS meeting, Boston, MA
- 2008 National Science Foundation GK-12 Annual National Meeting, Washington, DC.
- 2007 "Changing the Course of Science Education: 2007 National Symposium for Scientists and Engineers, April 10-13, Santa Fe, NM.
- 2007, "Building Connections within the Engineering Education Research Community", NSF-Engineering Education Awardees conference, September 26-28, Arlington, VA.
- 2007 National Science Foundation GK-12 Annual National Meeting, Washington, DC.
- 2005 Proceedings of the American Society for Engineering Education, Portland, OR.
- 2005 National Science Foundation GK-12 Annual National Meeting, Washington, DC.
- 2004 National Science Foundation GK-12 Annual National Meeting, Washington, DC.
- 2003 National Science Foundation GK-12 Annual National Meeting, Washington, DC.

### **University Development Programs Attended**

- 2003 Western Athletics Conference, “Health Inequities” Planning meeting, New Orleans, LA.
- 2002 Western Athletics Conference, “Academic Alliance” Planning meeting, Boise, ID.
- 2001 Western Athletics Conference, “Energy, Bioengineering and Biosensing meeting, San Jose, CA.

## **Research Grants Awarded**

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### **Research Funding — External**

- “Bioimaging and Digital Microscopy Laboratory”, **Louisiana State Board of Regents Support Fund**, Performance period: 6/1/07 to 5/31/08, \$73,218 (Principal Investigator)
- “Nanoparticles and Stem Cells — Phase I”, **DARPA and Navy SPAWAR SC**, Performance period: 2/15/05 to 7/15/05, \$17,148 (Principal Investigator)
- “Nanoparticles and Stem Cells — Phase II”, **DARPA and Navy SPAWAR SC**, Performance period: 7/15/05 to 2/15/06, \$33,937 (Principal Investigator)
- “Nanoengineering Polyelectrolyte Microcapsules for In-Vivo Glucose Sensing”, **National Institutes of Health**, Performance period: 9/1/02 to 8/31/07, \$1,428,404 (Co-Principal Investigator)
- “Nanoscale Biotechnology: Molecules, Methods, Devices and Applications”, **Governor’s Biotechnology Initiative**, \$1,200,000, plus \$200,000 in continuing funds, Performance period: 9/1/02 to present, (Co-Principal Investigator)
- “Tissue Response to Applied Mechanical Loads”, **LEQSF Research Support Fund**, Performance period: 9/1/98 to 8/31/00, \$75,500 (Principal Investigator)
- “TMJ Function and Biomechanics”, **National Institutes of Health**, Performance period: 9/1/96 to 8/31/00, \$864,530 (Co-Principal Investigator)
- “Emerging Faculty Travel Grant”, **Louisiana State Board of Regents**, Performance period: 9/1/96 to 8/31/97, \$1,000 (Principal Investigator)
- “Emerging Faculty Travel Grant”, **Louisiana State Board of Regents**, Performance period: 5/1/03 to 9/31/03, 5/1/06-9/01/06 \$1,000 (as accompanying mentor)

### **Research Funding — Internal**

- “Growth Factor Effects on Fibrochondrocytes Seeded on Electrospun Polycaprolactone Scaffolds” **Governor’s Biotechnology Initiative New Project Award**, Performance period: 11/27/07 to 3/1/08, \$2,180 (Principal Investigator)
- “Cell Adhesion, Growth and Functionality on Nanoporous Titania,” **Governor’s Biotechnology Initiative New Project Award**, Performance period: 11/27/07 to 3/1/08, \$1,950 (Principal Investigator)
- “Characterization of Stem Cell Response on Nebulized Bioactive Substrates” **Governor’s Biotechnology Initiative New Project Award**, Performance period: 11/27/07 to 3/1/08, \$1,850 (Principal Investigator)
- “Bioengineering a TMJ Disc Replacement Material using Electrospun Polycaprolactone Scaffolds **College of Applied & Natural Sciences Faculty Research Program**, Performance period: 10/30/07 to 5/1/08, \$1,927 (Principal Investigator)
- “**ANS Travel Grant**” to attend the 2008 World Biomaterials Conference, Amsterdam, Netherlands. Performance period: 10/01/07 to 10/30/08, \$3,624 (Principal Investigator)

“Acquisition of Radiofrequency Glow Discharge Plasma Cleaner”, **IFM Internal Equipment proposal** Performance period: 11/30/06 to 4/1/07, \$16,327 (Co-Principal Investigator)

“Acquisition of a BioRad Biotechnology Equipment Package”, **IFM Internal Equipment proposal**, Performance period: 11/30/06 to 4/1/07, \$12,230 (Principal Investigator)

“Layer-by-Layer Absorption of Biocompatible Polyelectrolytes onto Dexamethazone Aggregates.” **College of Applied & Natural Sciences Faculty Research Program**, Performance period: 11/30/06 to 4/1/07, \$795 (Principal Investigator)

“**ANS Travel Grant**” to attend the 2006 Biomedical Engineering Society annual meeting, Chicago, Illinois. Performance period: 10/01/06 to 10/30/06, \$1,500 (Principal Investigator)

“Safety of an Innovative Noninvasive Electrical Stimulation Method to Control Seizures in Rats”, **Louisiana Tech University Summer Faculty Research Program**, Performance period: 5/30/06 to 8/30/06, \$2,000 (Co-Principal Investigator)

“**ANS Travel Grant**” to attend the 2005 American Association for Dental Research annual meeting, Orlando, Florida. Performance period: 3/01/06 to 3/30/06, \$2,100 (Principal Investigator)

“Biomonitoring, Bioremediation and Biosensing Initiative,” **Governor’s Biotechnology Initiative New Project Award**, Project period: 10/31/05 to 9/30/06, \$10,000 (Principal Investigator)

“Stem Cells for Regenerative Medicine”, **Governor’s Biotechnology Initiative New Project Award**, Project period: 10/31/05 to 9/30/06, \$10,000 (Principal Investigator)

“Effects of Interfacial Material Properties on Cellular Mechanics”, **Louisiana Tech University Summer Faculty Research Program**, Performance period: 5/30/05 to 8/30/05, \$2,000 (Co-Principal Investigator)

“Epithelial Bio-Material Mechanical Interface”, **Louisiana Tech University Summer Faculty Research Program**, Performance period: 5/30/05 to 8/30/05, \$2,000 (Co-Principal Investigator)

“Bio-Nano-Integration for Biotechnology”, **IFM Biotechnology Thrust Award**, Performance period: 9/30/04 to 5/30/05, \$10,000 (Principal Investigator)

“Development of a SAMS-Based Cell Culture Platform”, **College of Applied & Natural Sciences Faculty Research Program**, Performance period: 5/30/03 to 8/30/03, \$698 (Principal Investigator)

“A Novel System for Culturing Full Thickness Skin Tissue Sections”, **College of Applied & Natural Sciences Faculty Research Program**, Performance period: 9/30/01 to 5/30/02, \$1,190 (Principal Investigator)

“Age-Related Effects of TGF- $\beta$  on Maturation of the Rabbit CMJ Disc”, **Louisiana Tech University Summer Faculty Research Program**, Performance period: 5/30/00 to 8/30/00, \$950 (Principal Investigator)

“Engineering Cell-Seeded Polymer Composites”, **Louisiana Tech University Summer Faculty Research Program**, Performance period: 5/30/99 to 8/30/99, \$800 (Principal Investigator)

“Characterization of Cartilage Phenotype in Cell-Polymer Composites”, **Louisiana Tech University Summer Faculty Research Program**, Performance period: 5/30/97 to 8/30/97, \$850 (Principal Investigator)

“Cell Birth and Cell Death in the Rabbit CMJ Disc”, **Louisiana Tech University Summer Faculty Research Program**, Performance period: 5/30/96 to 8/30/96, \$1000 (Principal Investigator)

“Effects of Mechanical Loads on Matrix Synthesis and Degradation in the Rabbit CMJ Disc”, **Louisiana Tech University Summer Faculty Research Program**, Performance period: 5/30/95 to 8/30/95, \$850 (Principal Investigator)

“Characterization of Collagen Composition and Fiber Architecture in the Developing TMJ Disc”, **Louisiana Tech University Summer Faculty Research Program**, Performance period: 5/30/94 to 8/30/94, \$1000 (Principal Investigator)

### **Education Grants Awarded**

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#### **Education Grants – External**

“Linking ‘Creating Connections’ and LaTech’s NERO program”, **National Science Foundation RET Program**, Performance period: 4/1/08 to 3/30/09, \$49,916.00 (Principal Investigator)

“Louisiana Tech/Grambling State Regional Education Collaborative Program”, Shell Oil Company, Performance period: 2/1/08 to 1/31/09 \$65,000 (Co-Principal Investigator)

“Creating Connections: Advancing Knowledge, Learning and Stem Career Opportunities for Rural Louisiana”, **National Science Foundation GK-12 Teaching Fellows Program**, Performance period: 2/1/07 to 1/31/10 \$1,649,360 (Principal Investigator)

“NERO: Nanoscience Education and Research Outreach”, **National Science Foundation RET Program**, Performance period: 10/1/06 to 9/30/09, \$440,978 (Principal Investigator)

“Planning for the Biomedical Nanosystems IGERT Program”, **BOR/NSF/EPSCOR Major Initiatives Planning Grant**, Performance period: 5/1/05 to 4/30/06, \$12,592 (Co-Principal Investigator)

“NERO: Nanoscience Education and Research Outreach”, **BOR/NSF/EPSCOR Major Initiatives Planning Grant**, Performance period: 5/1/05 to 4/30/06, \$19,755 (Principal Investigator)

“The Louisiana Tech University K-12 Teaching Fellows Program”, **National Science Foundation GK-12 Teaching Fellows Program**, Performance period: 5/1/03 to 4/30/06 \$1,795,941 (Principal Investigator)

“Integration of Peer-Led Learning into Introductory Majors Biology and Introductory Microbiology Courses”, **National Science Foundation (WPA)**, Performance period: 9/1/01 to 5/31/02, \$36,676 (Principal Investigator)

“Bionanotechnology and Simulations,” **LEQSF Support Fund**, Performance period: 9/1/02 to 5/31/03, \$64,134 (Co-Principal Investigator)

“The Virtual Biology Smart Lab: Increasing Scientific Literacy Through Technology,” **LEQSF Support Fund**, Performance period: 9/1/00 to 5/31/01, \$64,134 (Co-Principal Investigator)

#### **Education Grants – Internal**

“Multi-Media Virtual Museum and Laboratory,” **Louisiana Tech University Student Technology Fee Board**, 10/1/03 to 5/30/04, \$35,655 (Principal Investigator)

“CTH Instructional Neuroscience Laboratory,” **Louisiana Tech University Student Technology Fee Board**, Performance period: 10/1/03 to 5/30/04, \$15,594 (Co-Principal Investigator)

“Digital Imaging Microscopy System”, **College of Applied & Natural Sciences Innovative Instructional grant**, Performance period: 10/1/00 to 5/30/01, \$1,265 (Principal Investigator)

“Student Participation in Learning Through New Technology”, **College of Applied & Natural Sciences Innovative Instructional grant**, Performance period: 10/1/97 to 5/30/98, \$987 (Principal Investigator)

“Learning Beyond the Classroom”, **College of Applied & Natural Sciences Innovative Instructional grant**, Performance period: 10/1/96 to 5/30/97, \$650 (Principal Investigator)

## Grants Pending

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- “Enhancement of Student Training in Nanotechnology”, **Louisiana Board of Regents Support Fund** (Principal Investigator), \$129,281
- “Nanotechnology Lab Enhancement For Pharmaceutical Nanoparticle Manufacture Education”, (Louisiana Board of Regents Support Fund), \$45,000 (Co-Principal Investigator)

## Reports of Invention

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- “Nanoparticle Coating for Cell Culturing on Implantable Materials”, **Mills, DK**, Kommireddy, D. and Lvov, Y.
- “Nanoassembly for Stem Cell Encapsulation”, **Mills, DK**, Edugapati, S, Golli, L., D. and Lvov, Y. (in preparation)

## Publications

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### Peer-Reviewed Journal Articles (\*denotes student in my lab)

- Aithal, R.\* **Mills, D. K.**, and Kuila, D. (2007) “Viability, Proliferation and Functionality of Hepatocytes Cultured on Self Assembled Monolayers (SAMs)-Modified Indium Tin Oxide (ITO),” *Journal of Biomedical Nanotechnology*, 3(3): 254-263.
- Aithal, R.\* Doss, A,\* Kumaraswamy,\* D., **Mills, D. K.**, Kuila, D. (2007) Growth and Functionality of Cells Cultured on Conducting and Semi-Conducting Surfaces Modified with Self-Assembled Monolayers (SAMs) *Journal of Nanoscience*, (in press)
- Veerabadrán, N.G., Goli, P.L.,\* Stewart-Clark, S.,\* Lvov, Y. and **Mills, D.K.** (2007) Nanoencapsulation of Stem Cells within Polyelectrolyte Multilayer Shells. *Macromolecular Bioscience*, 7(7): 877-882.
- Kommireddy, D.A., Sriram, S. M.,\* Lvov, Y. and **Mills, D.K.** (2006) Stem Cell Attachment to Layer-by-Layer Assembled TiO<sub>2</sub> Nanoparticle Thin Films. *Biomaterials*, 27(24): 4296-4303.
- Schoenly, K.G., Haskell, N.H., **Mills, D.K.**, Bieme-Ndi, C., and Larsen, K. (2006): Recreating Death’s Half Acre in the Schoolyard: Using Pig Carcasses as Model Corpses to Teach Concepts of Forensic Entomology and Ecological Succession. *American Biology Teacher*, 68(7): 402-411.
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- **Mills, D.K.**, Ramsey, L.R., and Jones, S.J. 'NERO: Nanoscience Education and Research Outreach Program, (2007) *NSF-Engineering Education Awardees conference*, "Building Connections within the Engineering Education Research Community" to be held September 26-28, 2007 in Arlington, VA.
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- Sharma, M., Akangire, S., Brown, Q., McShane, M.J. and **Mills, D.K.** (2004) Towards Realizing A Biocompatible, Nano-Scale, Implantable Glucose Sensor, *Biomedical Engineering Society meeting*, Philadelphia, PA.
- Roldan, J., Majeti, T., Ai, H. and **Mills, D.K.** (2004) Tissue Engineering the TMJ Disc: Controlled-Release of Instructional Molecules. "Advancing Diagnostic Approaches for TMJ Diseases/Disorders." *TMJ Association Annual Meeting*, Arlington, VA., May 5-6<sup>th</sup>.
- K. R. Aithal, A. Doss, D. P. Kumaraswamy, **D. K. Mills**, and D. Kuila. (2004) "Growth and functionality of cells cultured on self assembled monolayers patterned on conducting and semi-conducting substrates," *Biomaterials in regenerative medicine: The advent of combination products*, October, Philadelphia.
- Li, M., Glawe, J., **Mills, D.K.**, Cui, T., Lvov, Y. and McShane, M. (2003) Microfabricated Polymeric Channels with Nanoengineered Polyelectrolyte Films to Control Cell Adhesion. *20<sup>th</sup> Annual Houston Conference on Biomedical Engineering*. Houston, TX. February 3-4<sup>th</sup>.
- Ai, H., Fang, M., Lvov, Y., **Mills, D.K.**, and Jones, S.A. (2002) Layer-by-Layer Nano-Assembly of Polymers on Silicone Rubber: A New Substrate for Endothelial Cell Growth. *Society for Biomaterials 26<sup>th</sup> Annual meeting*, Tampa, Florida, April 2002.
- Ai, H., Ming, F., **Mills, D.K.**, Alexander, S.J., Lvov, Y.M., Jones, S. (2002) Layer-by-layer Assembly of Gelatin Nanofilm on PDMS to Increase Endothelial Cell Adhesion and Growth. *Institute of Biological Engineering Conference Proceedings*. Baton Rouge, Louisiana.
- Ai, H., Fang, M., Lvov, Y., **Mills, D.K.**, Alexander, S.J., Jones, S. (2002) Coating Poly-D-Lysine on Nano-Film on PDMS for Endothelial Cell Adhesion and Growth. *Experimental Biology Annual Meeting*, New Orleans, Louisiana.
- Hill, J and **Mills, D.K.** (2002) Cytoskeletal Arrangement and Expression of Smooth Muscle Cells Cultured on a Micro-fabricated PDMS Substrate. *Institute of Biological Engineering Conference Proceedings*. Baton Rouge, Louisiana.
- Li, M., Kondabatni, K., **Mills, D.K.**, McShane, M and Gale, B. (2002) Properties of Self-Assembled Polymer/Biological Nanocomposite for Tissue Culture. *6<sup>th</sup> New Jersey Symposium on Biomaterial Science*, Somerset, NJ, October 17-18.
- Li, M., Ai, H., **Mills, D.K.**, Lvov, Y., Gale, B. (2002) Increasing the Alignment of Smooth Muscle Cells by 100um Channels with Micro- and Nano-Technology. *Institute of Biological Engineering Conference Proceedings*. Baton Rouge, Louisiana.
- Kantak, A., Sant, H., Lvov, Y., **Mills, D.K.**, Alexander, S. and Jones, S.A. (2001) A Microfluidic Platform for Platelet Adhesion Studies. *Small Talk Conference, San Diego, CA*.
- **Paul R. Ramsey and David K. Mills. (2000)** School of Biological Sciences, Louisiana Tech University, Ruston, LA "Factors of Concern in Forming International Linkages: Viewpoints at a Southern University in the United States". World Congress of the Czechoslovakia Society of Arts and Sciences.

#### Regional Presentations (last five years)

- Howard, J., Keeton, K., Moller, D., Bearden, S., Mainardi, D., Ramsey, L.R., and **Mills, D.K.** (2008) 'Creating Connections': Integrating Education and Science in North Louisiana Middle Schools. (2008) *NSF-GK-12 Regional meeting*, Purdue University, Lafayette, IN, November 7-8<sup>th</sup>
- **Mills, D.K.** (2008) Louisiana Regional Collaborative: Bringing Bioanotechnology Research into K-12 Classrooms. *14<sup>th</sup> Annual Meeting Texas Regional Collaboratives*, Austin, TX Jul 9-11<sup>th</sup>
- Groan, M., Keeton, K., Green, D., Jones, S.J., Ramsey, L.R., and **Mills, D.K.** (2007) 'Creating Connections' GK-12 Outreach Program, (2007) *NSF-GK-12 Regional meeting*, Texas A&M, College Station, TX, November 9-10<sup>th</sup>

#### Local/State Presentations (last five years)

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- Patel, Shraddha, Gold, S. and **Mills, D.K.** (2008) " Nanoporous Titania Cellular Scaffolds: a Novel Substrate for Enhanced Osseointegration." *IFM Functional Nanoassembly Seminar Series.*
- Mills, D.K., Ramsey, L.R., and Jones, S.J. "Nanotechnology Educational Outreach: Making Nanotech Relevant at the K-12 Level', (2007) *IFM Functional Nanoassembly Seminar Series.*
- Ronald, S., Lvov, Y. and **Mills, D.K.** (2007) Titania nanoparticles for TMJ Bioengineering. *IFM Functional Nanoassembly Seminar Series.*
- Ronald, S., Lvov, Y. and **Mills, D.K.** (2007) Fibrochondrocyte Behavior on Titanium Dioxide Nanofilms. *Louisiana Tech Annual Student Research Symposium.*
- LA Tech GK-12 ACT Prep Program (2005) Skylar Stewart, Sarah Bezucha, David Mills, Linda Ramsey. Southeastern Regional GK-12 Conference, December 9-11, 2005, Emory University, Atlanta, GA
- Kurnala, V, Stewart-Clark, S, Lvov, Y. and **Mills, D.K.** (2006) Characterization of substrates prepared through a new layer-by-layer assembly methods. *IFM Functional Nanoassembly Seminar Series.*
- Turner, P., **Mills, D.K.** and Sit, Sidney P. (2006) Analysis and Comparison of Physical Characteristics of Electrospun Tissue Engineered Scaffolds for Temporomandibular Joint Regrowth, *Louisiana Materials Conference*, Baton Rouge, LA
- Kurnala, V, Stewart-Clark, S, Lvov, Y. and **Mills, D.K.** (2006) Characterization of substrates prepared using Nebulization versus traditional layer by layer assembly, *Louisiana Materials Conference*, Baton Rouge, LA
- **Mills, D.K.**, Stewart-Clark, S, Veerabadran, N. and Lvov, Y. (2006) Nanoencapsulation of Stem Cells. *IFM Functional Nanoassembly Seminar Series.*
- Vanhoof, S., Ronald, S., Kurnala, V., Chilakala, S., **Mills, D.K.** and Lvov, Y. (2006) "Evaluation of Competing Methods for Developing Layer-by-Layer Assembled Cell Scaffolds". *Applied & Natural Science Research Symposium*
- Nallapati, C., Chilakala, S., McShane, M., Lvov, Y. and **Mills, D.K.**, (2006) "Biocompatibility Studies of Polymeric Materials for use in Implantable Glucose Biosensors". *Applied & Natural Science Research Symposium*
- Chilakala, S., McShane, M. and **Mills, D.K.** (2006) "In Vivo Biocompatibility Studies of Polymeric Materials for use in Implantable Glucosensors". *Louisiana Board of Regents BioDay*
- Shaik, J., Shaikh Mohammed, J., McShane, M. and **Mills, D.K.** (2006) "Nanoassembled Polyelectrolyte Multilayer Platforms for Bone and Cartilage Cell Culture". *Louisiana Board of Regents BioDay*

- Parveen, A., Aithal, R., Kuila, D. and Mills, D.K. (2006) “Nanoporous and Microporous Substrates as Cell Culture Platforms”. *Louisiana Board of Regents BioDay*
- Mills, D.K. (2005) TMJ Bioengineering. *IFM Functional Nanoassembly Seminar Series*.
- Cheruka, S., Paun, A and Mills, D.K. (2005) “A New Simulation Framework for the Modeling of Signal Transduction Pathways.” *2005 Louisiana Academy of Science meetings*.
- Stewart, S., Bezucha, S. Mills, D. K., Ramsey, L. (2005) LA Tech GK-12 ACT Prep Program Southeastern Regional GK-12 Conference, December 9-11, 2005, Emory University, Atlanta, GA
- Stewart, S., Bezucha, S. Mills, D. K., Ramsey, L. (2005) Focusing On The Needs Of Our Community (2005) Southeastern Regional GK-12 Conference, December 9-11, 2005, Emory University, Atlanta, GA

Skylar Stewart, Sarah Bezucha, David Mills, Linda Ramsey

### **Invited Seminar Presentations**

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- Delta Sigma Kappa
- *Nanoassembly for TMJ Bioengineering*, TMJ Bioengineering Conference, Broomfield, CO, May, 2006
- *Nanoparticles and Regenerative Medicine*, Toxicology Department, University of Louisiana at Monroe, 2005
- *Working with Biomedical Engineers: A Biologist's Perspective*, Louisiana Tech Biomedical Engineering Society, December 2005
- 2002 Western Athletics Conference, “Louisiana Tech: New Partner in the WAC”, Academic Alliance Planning meeting, Boise, ID.
- *Forensic Taphonomy*, Northeast Louisiana Medical Technology Society, November 2000
- *Etiopathogenesis of TMD*, Biomedical Engineering Research Society October 1998
- *Forensic Anthropology at Louisiana Tech University*, Annual Meeting of the Louisiana Association of Forensic Scientists, May 1997
- *Cultural Variation in Illness, Disease Causation and Curing*, Division of Nursing, Louisiana Tech University, January 1996
- *Dead Men Do Tell Tales*, Ruston Lion's Club, March 1996
- *The Peel-River Kutchin*, Department of Sociology & Anthropology, Indiana University Northwest, 1993
- *Structure-Function Relationships in the TMJ Disc*, Polish Dental Society, Chicago, IL, November 1990
- *Disc Displacement Internal Derangements*, Department of Cell Biology & Anatomy, Chicago Medical School, September, 1989.

### **Lab Manuals**

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- Microscopic Organology (Histology) manual
- Forensic Anthropology
- Microscopic Techniques
- Mammalian Cell Culture Techniques
- NSF RET Solutions & Safety manual

### **Technical Reports**

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- McShane, M., Lvov, Y. and Mills, D.K. *Nanoengineering Polyelectrolyte Microcapsules for In-Vivo Glucose Sensing*, Annual Report, National Institutes of Health, Bethesda, Maryland, (2002, 2003, 2004, 2005, 2006)
- Mills, D.K. (2007) *Louisiana Tech's NSF RET 'NERO' Program*, Annual Report, National Science Foundation
- Mills, D.K. (2003, 2004, 2005, 2007) *Louisiana Tech's GK-12 Teaching Fellows Program*, Annual Report, National Science Foundation
- Mills, D.K. *Tissue Response to Mechanical Loads*, Annual Report, Board of Regents, State of Louisiana, (1998, 1999, 2000)
- Herring, S, Hanham, P. and Mills, D.K. *TMJ Function and Biomechanics*, Annual Report, National Institutes of Health, Bethesda, Maryland, (1998, 1999, 2000)

### **Workshops Developed & Directed**

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- Academic Engagement for Research Faculty (2008)
- Translating Nanotechnology Research into K-12 Curricular Activities (2008)
- Creating Connections: Partner Teacher Program (2008)
  - Shell Oil nanoScience Day (2008)

### **Student & Teacher Research & Supervision**

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#### **PhD degrees earned under my guidance and direction (3)**

- Skylar Stewart, (2008) "*Nanoassembly of Stem Cell and Bioengineered Tissues*", Dissertation Chairman
- Jameel Shaik Mohamed, (2007) "*Growth and Behavior of Chondrocytes on Nanoengineered Surfaces and Construction of Micropatterned Co-Culture Platforms Using the LbL-LO Method Cell Culture*", Dissertation Chairman
- Rajendra Aithal, (2006) "*SAM Culture Platforms for Development of a Cell-Based Bioreactor*", Dissertation Co-Chairman

#### **MS degrees earned under my guidance and direction**

##### **MS in Biological Sciences (12)**

- Bottolfs, Janie, "*Growth Factors Effects on TMJ Disc Cell Behavior*"
- Champenall, Matthew, "*MMP Expression in Displaced TMJ Disc Tissues.*"
- Collinsworth, Amy, "*Expression of TGF- $\alpha$  and TGF- $\beta$  during TMJ Disc Maturation.*"
- Donasetty, Nagaventa, "*Stem Cell Differentiation under Defined Mechanical Loads*"
- Doriraj, Nandakumar, "*Cyclic Fatigue of Hydroxyapatite Coated Titanium Alloy Dental Implants After Exposure to a Periodontal Pathogen*"
- Doss, Amber, "*Growth and Functionality of Cells Grown on SAM Substrates*"
- Johnson, Latonia, "*MMP Expression During TMJ Disc Maturation*"
- Naidu, Kiran, "*CTGF Expression During TMJ Disc Maturation*"
- Pakalapati, Deepak, "*Evaluation of the Effects of TGF- $\beta$  on Fibrochondrocytes Grown on Electrospun PCL Scaffolds*"

- Roberson, Jason *“Does Exogenous TGF- $\beta$  Potentiate Matrix Metalloproteinase (MMP) Expression?”*
- Sharma, Mukesh, *“Immune Response To Implanted Glucose Biosensor Components”*
- White, Lisa, *“The Effects of Exogenous TGF- $\beta$  on the Development of the Temporomandibular Joint”*

#### **MS in Biomedical Engineering (16)**

- Agankire, Sanjay *“Biocompatibility of Implantable Glucose Sensor Components in Rat Dermis: A Fibrous Capsule Study”*
- Chenna, Saigovind, *“Osteogenic Potential of Nanoparticle Substrates”*
- Chilakala, Shalini, *“In Vivo Biocompatibility Studies of Polymeric Materials for Use in Implantable Glucosensors”*
- Gundavarapu, Sravanthi , *“In Vitro Cytotoxicity Studies of Polyelectrolyte-Coated Alginate Microspheres”*
- Hazare, Lingeswaa, *Osteoblast Behavior on Calcium Carbonate and Calcium Phosphate Microspheres*
- Kancherlapalli, Chandra, *“Adipogenesis on Nanoparticle Substrates”*
- Kumaraswamy, Deepak , *“Viability of Hepatocytes on SAM-Coated Substrates”*
- Kunder, Sharon, *“Stem Cell Growth and Chondrogenic Differentiation on Nanoparticle-Coated Substrates”*
- Midde, Swetha, *“Osteoblast Functionality on Bioactive TiO<sub>2</sub> Nanosubstrates”*
- Nair, Vandana, *“Study of the In Vivo Biocompatibility of Polymeric Materials and Assessment of Host Immune Response”*
- Praveen, Asma, *“Cell Growth and Differentiation on Micro- and Nanoporous Biomaterials”*
- Ronald, Sharon, *“Fibrochondrocyte Behavior on Functionalized Titanium Dioxide Nanofilms”*
- Sasi, Sharath, *“In Vivo Biocompatibility of Polyelectrolyte Microcapsules as Glucose Sensor Components: Fibrous Encapsulation Study”*
- Shanigaram, Varun, *“An In Vitro Study of Cellular Response to Different SAM Substrates”*
- Wuyyuru, Varalakshmi, *“Cytotoxicity Analysis of Polyelectrolyte Microcapsules Used in Glucose Sensor Design”*
- Ying, Weizhen, *“Photobiomodulation Effects on Human Dermal Fibroblasts”* (co-thesis director with Dr. Walt Besio)

#### **MS in Chemical Engineering (1)**

- Majeti, Tanuja, *“In Vitro Growth and Behavior of Osteoblasts on TiO<sub>2</sub> Nanoparticle Substrates”*

#### **MS in Molecular Science and Nanotechnology (6)**

- Bindu, Radha Hima, *“Chondrogenesis on Four-Layer TiO<sub>2</sub> Nanosubstrates”*
- Nallapati, Chinna, *“Biocompatibility Studies of Polymeric Materials for use in Implantable Glucose Biosensors”*
- Dontamsetty, Nagavenkata, *“Stem Cell Differentiation and the Role of Mechanical Load”*
- Patel, Shraddha, *“Cell Adhesion, Growth and Functionality on Nanoporous Titania,”*
- Roldan, Jorge, *“Controlled Release of Multi-Instructional Proteins from Thin Film Coated Microspheres”*

- Sriram, Shashi, *“Stem Cell Differentiation on Nanoparticle-Coated Substrates”*

#### **MS Practicum in Biomedical Engineering (3)**

- Bandi Chandrasree , *“Growth of Chondrocytes on Nanofilm Composites”*
- Besucha, Sarah *“Bioactive Microsubstrates”*
- Golli, Lakshmi *“Stem Cell Encapsulation”*

#### **MS Practicum in Molecular Science & Nanotechnology (5)**

- Sarah Besucha, *“Bioactive Nanoparticle Substrates”*
- Cecil Kumfa, *“bFGF and TMJ Disc Maturation”*
- Sterling, Shwana, *“Nanoassembly and Co-Culture Substrates”*
- Ravi Nandagiri, *“Connective Tissue Growth Factor Expression in TMDs”*
- Jiewei Xu, *“Nanoassembled Substrates for Co-Culture Systems”*

#### **Non-thesis MS degrees earned under my guidance and direction (36)**

- |                     |                    |                        |
|---------------------|--------------------|------------------------|
| • Adam Elliot       | • Michael Richmond | • Rebecca Jordan       |
| • Teresa Buckley    | • Andy Sandel      | • Michael Olesksik     |
| • Clay Efferson     | • Darrin Letsinger | • John Breard          |
| • Michael Beuchler  | • Nina Jackson     | • Kim Bui              |
| • Jenny Ramsey      | • Jeremy Carrico   | • Eric Spencer         |
| • Gretchen Crawford | • Shelly Rabalais  | • Rachel Wilson        |
| • Ryan Sewall       | • Tasha Jones      | • Paul Caplis          |
| • Vikas Misra       | • Robert Smith     | • Angela Miller        |
| • Johnathan Baines  | • Justin Reynolds  | • Jason Hill           |
| • Michael Buechler  | • Miriam Girgis    | • Telecia Johnson      |
| • Keith Harrison    | • Sean Denham      | • Qwillwanti Lewis     |
| • Katy Sandel       | • Tanya Louis      | • Stephanie Villaralba |
| • Sankarsh Reddy    | • Tara Calhoun     | • LaQuatre Rhodes      |
| • Parima Desai      | • Cecil Kumpfa     | • Rashida Champion     |

#### **Additional Academic Service**

I have also served as:

- Committee member for 15 PhD research students in Engineering and 34 MS research students in Biomedical Engineering
- Committee member for 12 MS practica in the Biomedical Engineering and 4 in the MSNT program

The following undergraduate students completed a multi-quarter undergraduate student research project under my direction

## AMERICAN HEART ASSOCIATION RESEARCH STUDENTS MENTORED

- John Dellacrocce, *'Surgical Implants and Tissue Necrosis'* (Funded)
- Jane Sandel, Cell *'Birth & Cell Death in the Maturing CMJ Disc'* (Funded)
- Jeffrey Cheramie, *'TGF-  $\beta$  Effects on Proteoglycan Synthesis'* (Funded)
- Kim Smithermann, *'Targeted Drug Delivery of GM1 Gangliosides'* (Funded)

## UNDERGRADUATE RESEARCH STUDENTS MENTORED

- Brian Miller
- Ashley Butler
- Troy Lefort,
- Becky Mumm
- Kim Ellis
- Brian Sledge
- Anthony Inzina
- Catherine Spiller
- Amy Dunn
- Rhonda Giltner
- Christy Favorite
- Matthew Green
- Joe Griffin
- Lori Findley-Mendoza
- Ashley Butler
- Joey Mendoza
- Stephen Dejedos
- Bridgette Jones
- Lori Findley-Mendoza
- Nadia Thompson
- Mariam El-Baghdadi
- Jennifer Owens
- Nick Simpson
- Scott Torrey
- Matthew Green
- Brian Chin
- Michael Wilmore
- Scott Torrey
- Catherine Toms
- Shelly Babin
- Amy Collinsworth
- Chelsea Tyler
- Lisa White
- Charles Watson
- Matt Ganey
- Tim Wakeman
- Stewart Raley
- Amy Dunn
- Sara Kendrick
- Kelley Crozier
- Libby Austin
- Becky Buell
- Drew Tyler

## BIOMEDICAL ENGINEERING SENIOR DESIGN PROJECTS MENTORED

- Steven McMullan, *"Functionalized Nanoporous Titania for Bone Engineering"*
- John Dellacrocce, *"Heated Surgical Probes"*
- Melissa Cobb, *"A Cellular Loading Device"*
- Chris Davis, *"A Sonography System for TMJ Assessment"*
- Kelly Callahan, *"Improved Access for Hemodialysis Patients"*
- Jeremy West, *"A Device to Load Soft Tissues"*
- Paul Turner, *"SpinTech, Inc: Generation of Fibrocartilage Tissue for TMJ Disc Repair Using Electrospun Polymeric Scaffolds"*
- Danny Katishian, *"FemmeSure: "Self-reliant Diagnostic Aids"*

## NSF RESEARCH EXPERIENCES FOR UNDERGRADUATES RESEARCH MENTOR

- Steven Ellis, *"CTGF and Soft Tissue Remodeling" (2007)*
- Daniella Lewis, *"Electrospun Scaffolds for TMJ Repair"(2007)*
- Myrna Burgos, *"TiO<sub>2</sub> Nanofilms for Bone Tissue Engineering"(2005)*
- Gordon Prange, *"TGF- $\beta$  and Discal Development" (2004)*
- Hsin-I Peng, *"Nanofilm for TMJ Bioengineering "(2003)*

## NSF RESEARCH EXPERIENCES FOR TEACHERS (K-12) MENTOR

- Janie Hamby, *"Electrospun Scaffolds for TMJ Repair"(2007,2008)*
- Sandra Pena, *"Stem Cell Encapsulation" (2007)*

## Teaching Experience

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### Louisiana Tech University

- Principles of Cell & Molecular Biology (G)
- Genes & Development (G)
- Growth & Form (G)
- Graduate Special Topics (G)
- Graduate Seminar (G)
- Applied Biology Research (G)
- Undergraduate & Graduate Special Problems (U/G)
- Microscopic Techniques (U/G)
- Histology (U/G)
- Comparative Anatomy (U)
- Human Anatomy & Physiology (U)
- Biological Principles (U)

#### **Chicago Medical School**

- Histology (G)
- Assisted with Human Gross Anatomy (G)

#### **University of Illinois Medical Center**

- Biology of the Human Dentition (G)
- Dental Histology (G)
- Advanced Oral Histology (G)
- Human Gross Anatomy (G)

#### **Indiana University Northwest**

- Introduction to Cultural Anthropology (U)
- Prehistory of North America (U)
- Ethnography of North America (U)
- Medical Anthropology (U)

#### **College of St. Francis**

- Introduction to Cultural Anthropology (U)

#### **Purdue University Calumet**

- Introduction to Cultural Anthropology (U)
- Psychological Anthropology (U)

**U = undergraduate, U/G = dual undergraduate/graduate, G = graduate**

#### **Specialty courses in my areas of expertise**

Biotechnology

Tissue Engineering

Bionanotechnology

## Human Osteobiology

My previous collaborations with biology and engineering faculty led to the successful development of new learning materials, lecture and lab courses. Accordingly, I am particularly interested in developing interdisciplinary undergraduate and graduate courses in biomaterials, bionanotechnology and tissue engineering.

## Professional Service

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### *External Academic Service*

Abstract Reviewer, Society for Biomaterials, 2008 Annual meeting, San Antonio, TX.

Member, Advisory Board, Bossier Parish Community College Biotechnology Program, 2007-present

Panelist Member, Department of Defense (DoD), the American Society for Engineering Education (ASEE) evaluation panel for the Science, Mathematics And Research for Transformation (SMART) Scholarship for Service Program.

### *Professional Societies*

#### **Presenter/Contributor for Conferences/Events**

Member, American Association for Dental Research (AADR) Advocates (since 1990)

Co-Organizer, Louisiana Material Science Conference, Institute for Micromanufacturing, Host October 11, 2005.

Louisiana Material Science Conference, Institute for Micromanufacturing, 15<sup>th</sup> Anniversary, November, 2007.

Co-Organizer, Louisiana Tech Dedication - new Biomedical Engineering Building, May 2007

#### **Conference Symposium Moderated/Chaired/Organized**

1. 8th World Biomaterials Congress, Co-Organizer and Session Chairperson, - LbL Nanoassembly for Biomaterials, Amsterdam, Netherlands, May 2008.

#### **Moderated/Reviewed Conference Abstracts**

1. Reviewer, Biomedical Engineering Society
2. Reviewer, American Association for Dental Research
3. Reviewer, 8th World Biomaterials Congress

#### **External Tenure Evaluator**

- Dr. Betty Sindelar, Physical Therapy Department, The Ohio University
- Dr. Mike McShane, Biomedical Engineering Program, Louisiana Tech University
- Dr. Stan Cronk, Biomedical Engineering Program, Louisiana Tech University

#### **Journal Reviewer**

- Acta Anatomica
- Acta Biomaterialia
- Annals of Biomedical Engineering
- Archives of Oral Biology
- Biomaterials
- Biomacromolecules
- Biomedical Materials Research
- Clinical Anatomy Biomaterials
- Connective Tissue Research
- Journal of Dental Research
- International Network for Engineering Education and Research

- Nanomedicine
- Tissue Engineering

### **International/National Professional Service**

- Grant Reviewer, Qatar National Research Fund, 2007-present
- NSF RET Site Panel Review member, 2007
- NSF NUE Site Panel Review member, 2006
- Co-Chairman, (2008) Layer-by-Layer Nanoassembled Biomaterials, *8<sup>th</sup> World Biomaterials Congress*, Amsterdam, The Netherlands, May 28-June
- Served as American Society for Cell Biology Correspondent for Junior and High School students interested in careers in Cell Biology, 1990-1998
- Hatton Awards Committee – American/International Association for Dental Research (2000)
- Served as Cohort Member American Association for Dental Research, 2000-present

### **Service to Louisiana Tech University**

- LaTech's "Good to Great" Committee, (2006-2007)<sup>1</sup>
- Member, NCAA Reaccreditation Steering Committee (2003-2006)<sup>1</sup>
- Chairperson, NCAA Reaccreditation Academic Integrity Subcommittee (2005-6)<sup>1</sup>
- Chairperson, NCAA Reaccreditation Academic Integrity Subcommittee (2003-4)<sup>1</sup>
- Member, BioSafety Committee (since 2000)<sup>1</sup>
- Member, Radiation Safety Committee (since 2000)<sup>1</sup>
- Member, Pre-Med/Pre-Dent Advisory Committee (since 1995)
- Member, Institutional Review Board (since 1994)<sup>1</sup>
- Member, University Safety Committee (since 1994)
- Member, Science Education Committee
- Participated in Program Review for the Proposed Ph.D. in Nutrition and Dietetic Studies
- Member, Nursing Advisory Council (1995-present)
- Member, Cardiovascular/Tissue Engineering Research Group, a Multidisciplinary Research Team Representing Mathematics, Chemistry, Biological Sciences and Biomedical Engineering, 1998 to present
- Louisiana Tech University Coordinator of Judges, Region II Science and Engineering Fair 1995 to 2000.  
(Additionally, assisted in training of two new Fair Directors)
- Participated in the development of new research collaborations and degree programs (MS in MSNT) between the College of Applied &

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<sup>1</sup> Appointed at the request of Dr. Daniel Reneau, President of Louisiana Tech University

Natural Sciences at College of Engineering and Sciences at Louisiana Tech.

- Participated in the development of new research collaborations and degree programs (MS in MSNT) between the College of Pharmacy at ULM and Louisiana Tech.

#### **Service to the College of Applied & Natural Sciences**

- Member, Administrative Council, (2000-2004)
- Member, Graduate Council, (1995-1999)
- Member, Research Council, (1994-1996, 2005-2006, 2007-2009)
- Member, Dean Search Committee, (6)
- Member, SBS Director Search Committee, (2)
- Member, Faculty Senate, (1995-1996, 1997-2000, 2004-2007)

#### **Service to the College of Engineering & Science**

- Member, BME Faculty Search Committee – (7)
- BME Building Infrastructure
- Member, IfM Faculty Search Committee – (6)
- Member, IGERT Planning Group – (IfM, 2)
- NSF Center Grant Planning Group (IfM)
- Assisted with the redesign of CATALYST, Louisiana Tech's STEM Center

#### **Department**

- Chairperson, Faculty Search Committee – College of Applied & Natural Sciences (5)
- Member, Medical Technology Coordinator Search Committee
- Member, SBS Faculty Search Committee (9 faculty)
- Member, BME Faculty Search Committee (3 faculty)
- Past Chair, Member, P<sup>3</sup> workgroup and other faculty workgroups, 2000 to present
- Chair, Design of Current Topics in Environmental and Organismal Biology, 1998
- Member, C.O.R.E. Committee, School of Biological Sciences, 1998 to 2000
- Member, Graduate Program Committee, School of Biological Sciences, 1998 to 2000
- Member, Molecular Biology Curriculum Committee, School of Biological Sciences Member, 1998-1999
- Member, Advising Committee, School of Biological Sciences
- Member, Curriculum Committee, School of Biological Sciences, 1994 to 1995

## References

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