

# *James D. Palmer*

**Virgil Orr Professor in Chemical Engineering  
Academic Director of Biomedical and Chemical  
Engineering**



## **Education**

B.S., 1992 - University of Arkansas, Fayetteville, Chemical Engineering

Ph.D., 1997 - University of Arkansas, Fayetteville, Chemical Engineering

## **Honors/Awards**

College of Engineering and Science Teaching Award for Online M.S. in  
Engineering and Technology Management Team Fall 2011

Louisiana Engineering Foundation Engineering Faculty Professionalism Award  
Winter 2007/08

College of Engineering and Science Teaching Award for B.S. Nanosystems  
Engineering Team Fall 2003

Champion Grant (2), Albemarle Corporation 1999

APEX Award, Albemarle Corporation 1999

Champion Grant, Albemarle Corporation 1998

## **Registrations/Certifications/Licenses**

Professional Engineer (Arkansas) #11067

## **Experience**

July 2017 – Present: Associate Dean of Research for College of Engineering and  
Science

July 2017 – Present: Academic Director for Biomedical Engineering

September 2012 – Present: Professor in Chemical Engineering, Louisiana Tech  
University

July 2015 – June 2017: Academic Director for Biomedical and Chemical  
Engineering

March 2012 – August 2015: Associate Dean of Graduate Studies for College of  
Engineering and Science

September 2008 – June 2013: Academic Director for Chemical and  
Industrial Engineering

September 2008 – Fall 2010: Program Chair, Masters of Science, Engineering  
Management of Technology

September 2006 – 2012: Associate Professor in Chemical Engineering,  
Louisiana Tech University

September 2006 – Spring 2011: Program Chair, Ph.D. Engineering

September 2005 – Present: Virgil Orr Professorship

September 2004 – Fall 2011: Program Chair, Chemical Engineering, Louisiana  
Tech University

September 2000 – 2006: Assistant Professor in Chemical Engineering, Louisiana  
Tech University

Teaching: Senior Chemical Engineering Design (I, II, and III), Fluid  
Mechanics (sophomore level), Heat Transfer (junior level),  
Chemical Microsystems (graduate level), Nanosystems  
Engineering Laboratory (junior level), Microsystems  
Design, Fabrication, and Testing Lab (graduate level).

Research: Microfluidic devices: liquid phase mixing, liquid phase  
separation processes, catalytic liquid and gas phase  
reactions. Layer-by-layer self-assembly project – transport  
study of microshells, enzymatic reactions in microchannels,  
biofuel research.

June 2003 – August 2003: Office of Naval Research Summer Faculty Research  
Program at the Naval Research Laboratory, Washington D.C. Studied activity of  
immobilized *organophosphorous hydrolase* on methyl parathion.

July 1999 – August 2000: Albemarle Corporation – Process Technology  
Division, Magnolia AR - Participated in startup of a world scale 50,000-metric ton plant  
to produce brominated flame retardants. Studied the impact of impurities on the  
thermodynamics in a solvent recovery process (both modeling and generation of  
experimental data to validate model). Supervised kinetic studies of product thermal  
degradation in purification section of an organophosphorous process.

April 1997 – July 1999: Albemarle Corporation – Research and Development,  
Baton Rouge, LA - Performed both pilot and bench experiments for the production of  
metallo-organic compounds. Was instrumental in the successful scale-up of Albemarle's  
most complicated chemical process to date (defined as number of reaction steps). Was  
the lead engineer for the development of a new product. Studied the effect solid/liquid  
phase equilibria on chiral resolutions. Obtained a US process patent with co-workers in  
area of solid/liquid separations (US Patent# 6,469,212).

Three intern experiences:

- Texaco's Central Engineering and Purchasing – Houston TX, Summer 1992
- Science and Engineering Research Semester – Los Alamos National Laboratory, Spring Semester 1992
- Texaco's Process Research and Development – Beaumont TX, Summer 1991

### **Patents/copyrights**

Separation of 2,4-Toluenediamine from and Isomeric Mixture of Toluenediamines; J. Prindle, M. Easson, J. Palmer, J. Jones, M. Mortensen, J. Boone; US 6,469,212; Oct. 22, 2002.

### **Professional Development Activities**

- Consulting AmerCable, El Dorado AR, December 2012.
- Expert witness for Breithaupt, Dunn, DuBos, Shafto & Wolleson, L.L.C. (successful settlement for plaintiff).
- My cellulosic ethanol work was highlighted in Louisiana Economic Quarterly Q4 2009 p. 28.
- A press release of my cellulosic ethanol work was filed in October 8, 2009 and picked up by national news organizations, within 24 hrs, the story was covered by 13 news outlets nationally and internationally including R&D Magazine, ScienceDaily, and PhysOrg.com.
- 2008 Fall American Institute of Chemical Engineers National Meeting, Nov. 15 – 21, 2008, Philadelphia, PA, co-chaired session on microreactors.
- 2008 Southeast Regional Chemical Engineering Department Head meeting, June 7 – 11, 2008, Jekyll Island, GA.
- 2007 GEOINT Conference, Oct. 22 – 24, 2007, San Antonio, TX.
- 2007 Southeast Regional Chemical Engineering Department Head meeting, June 10 – 12, 2007, Jekyll Island, GA.
- Southern Bioenergy Retreat, September 15, 2006, Atlanta GA
- 2006 GEOINT Conference, 3 days, November 13-15, 2006, Orlando FL. Participated in faculty workshop, tradecraft workshop and ONIR short course.
- 2006 Southeast Regional Chemical Engineering Department Head meeting, June 11 – 13, 2006, Panama City Beach FL.
- 2003 SACHE Faculty Workshop, AIChE SACHE, 3 days, Sept. 28 – Oct. 1 2003, Exxon Chemical Company, Baton Rouge LA
- Effective Teaching Workshop taught by Rich Felder and Rebecca Brent, COES, 1.5 days, Sept. 4-5 2003, Louisiana Tech University.
- Trends in Nanotechnology Patents and Licenses, Infocast's National Nanotechnology Initiative "From Vision Towards Commercialization", 1 day, Washington D.C. April 29, 2002.
- "Funding Opportunities for Emerging Technologies: Focus on Bio- and Information Technologies", Louisiana Board of Regents and NSF, April 10-11, 2002.
- "Entrepreneurship and Information Technology Symposium", Louisiana Tech - CEnIT, 1 day, May 10, 2002, Shreveport Technology Transfer Center.

- The Second Louisiana Conference on Microfabrication & Materials Science, 3 days, August 20-22, 2001, Baton Rouge LA.
- “Roadmap to Opportunities”, Louisiana Board of Regents and NSF EPSCoR, Pennington Conference Center, Baton Rouge, LA, April 25 to 26, 2001.
- “Northeast Louisiana Research Conference”, Louisiana Board of Regents/NSF, Louisiana Tech University, Sept 21-22, 2000.

### **Honorary Societies**

Tau Beta Pi

### **Scientific/Professional Societies**

American Institute for Chemical Engineers

American Chemical Society

American Society for Engineering Education

### **Research Grants/Contracts**

- “Superior Graduate Fellows Supporting Five Centers of Excellence in Engineering”, Louisiana Board of Regents – Graduate Fellows, \$100,000, July 2017 to June 2021, Principal Investigator.
- “Superior Graduate Fellows Supporting Five Centers of Excellence in Engineering”, Louisiana Board of Regents – Graduate Fellows, \$300,000, July 2013 to June 2018, Principal Investigator.
- “Phenomenal Micro/Nanotechnology Education at Louisiana Tech University”, Louisiana Board of Regents – Enhancement, \$76,500, July 2012 to June 2013, Co-Investigator.
- “Superior Graduate Fellows Supporting Five Centers of Excellence in Engineering”, Louisiana Board of Regents – Graduate Fellows, \$200,000, July 2012 to June 2017, Principal Investigator.
- “Superior Graduate Fellows Supporting Three Centers of Excellence in Engineering”, Louisiana Board of Regents – Graduate Fellows, \$300,000, July 2011 to June 2016, Principal Investigator.
- “Superior Graduate Fellows Supporting Three Centers of Excellence in Engineering”, Louisiana Board of Regents – Graduate Fellows, \$200,000, July 2010 to June 2015, Principal Investigator.
- “Nanoengineered Systems for Biomedical Engineering and Energy Research”, Department of Energy, \$500,000 (my part \$50,000 not including fringe), October 2010 to September 2011, Co-Investigator.
- Frymaster industry contract \$50,000, January 1, 2011 – March 31, 2011, Co-Investigator.
- Kingtool industry contract \$100,000, September 2010 – current, Co-Investigator.
- “Nanoengineered Systems for Biomedical Engineering and Energy Research”, Department of Energy, \$1,435,000 (my part \$100,000 not including fringe), October 2009 to September 2010, Co-Investigator – I was appointed by our Dean to manage the entire grant due to the more detailed reporting requirements mandated by DOE’s Golden Office.

- “Superior Graduate Fellows Supporting Three Centers of Excellence in Engineering”, Louisiana Board of Regents – Graduate Fellows, \$100,000, July 2009 to June 2014, Principal Investigator.
- “NUE: Teaching Undergraduates Nanomanufacturing Engineering (TUNE)”, National Science Foundation, \$200,000, October 2008 to September 2010, Principal Investigator.
- “Nanoengineered Systems for Biomedical Engineering and Energy Research”, Department of Energy, \$1,435,000 (my part \$113,478 not including fringe), October 2008 to June 2009, Co-Investigator – I was initially listed as PI by our Vice President because of my lead role in writing and securing this Congressional Directive, however this was changed by Congressional staffers to list our Dean to utilize a prior request that was funded at a much lower amount.
- “FTIR for Undergraduate Education and Research”, BoRSF-ENH, \$45,454, July 2007 to June 2008, Principal Investigator.
- “Enhancing Micro/Nanotechnology Education with Hands-on SEM”, BoRSF-ENH, \$60,630, July 2007 to June 2008, Co-Investigator.
- “Visualization of Chemical Engineering Processes in the Undergraduate Laboratories using a Large Venue Projector”, Student Technology Fee Program, \$20,000, February 2007 to May 2007, Principal Investigator.
- “Layer-by-Layer Nano Self-Assembly for Enzyme Immobilization”, BoRSF-RCS, \$113,491, July 2006 to June 2009, Principal Investigator.
- “Enhancing Nanotechnology Education with Hands-On Scanning Microscopy”, BoRSF-ENH, \$50,000, July 2005 to June 2006, Co-Investigator.
- “Technician for New Degree Programs”, North Louisiana Partnership for Innovation, \$10,000, May 2005 to April 2006, Co-Investigator.
- “Production of Monodisperse Alginate Microparticles for Glucose Sensor Applications”, LaTech Research Council, \$1000, June 2004 to August 2004, Principal Investigator.
- “Development of Nano/Microsystems Laboratory in Bogard Hall”, Student Technology Fee Program, \$150,000, October 2003 to May 2004, Co-Investigator.
- “Technician Support for Micro/Nano Laboratory and Degree Program”, North Louisiana Partnership for Innovation, \$10,000, June 2003 to May 2004, Principal Investigator.
- “Acquisition of a Mass Spectrometer for Undergraduate Laboratories and Research”, BoRSF-ENH, \$84,635, July 2002 to June 2003, Principal Investigator.
- “NUE: Teaching Nanosystems to Early College Students with Active Learning Experiences”, NSF, \$99,998, June 2004 to May 2006, Co-Investigator.
- “Microfluidic Membrane Concentrator for use with Chemical Warfare Sensors”, CEnIT, \$20,000, November 2002 to August 2003, Principal Investigator.
- “Membrane Separation in a Chemical Microsystem”, LaTech Research Council, \$500, summer research grant - June 2002 to August 2002, Principal Investigator.
- “Implementing an Experimental Design Process in the Senior Chemical Engineering Design Curriculum”, BoRSF-ENH, \$35,285.86, July 2001 to June 2002, Principal Investigator.

- “Incumbent Worker Training Program”, Louisiana Department of Labor, \$213,482, Project director from May 2001 to January 2002.

## **Publications**

- J. Palmer, “Google Sheets for Real-time Assessment and Analysis of Less Structured Problems”, American Society for Engineering Education 2016 Annual Conference.
- D. Zhang, H. Hegab, Y. Lvov, L. Snow, J. Palmer, “Immobilization of Cellulase on a Silica Gel Substrate Modified Using a 3-APTES Self-Assembled Monolayer”, SpringerPlus, Vol 5, Issue 1, Jan 2016, pp. 1-20.
- H. Hegab, J. Palmer; “Assessment and Accreditation of a Nanosystems Engineering Degree at Louisiana Tech University”; American Society for Engineering Education 2013 Annual Conference.
- R. Nassar, X. Wu, M. Paun, W. Dai, J. Palmer; “A Mathematical Model Characterizing the Diffusion Properties of Microcapsules”; Chemical Engineering Communications, Vol 198, Issue 1, Jan 2011, pp. 33 – 45.
- Palmer, J; “Cleaner, Cheaper Fuels Are Enzymes the Key?”; Nano Magazine, Issue 16, February 2010, pp. 23 – 25, ION Publishing Ltd. (ISSN 1757-2517).
- Palmer, J.; Hegab, H.; “Developing An Open Ended Junior Level Laboratory Experience to Prepare Students for Capstone Design”; American Society for Engineering Education 2010 Annual Conference, AC 2010-364.
- Nassar, R.; Palmer, J.; Wu, Y.; Dai, W.; McShane, M.; “Modeling Transport Phenomena of FITC Labeled Dextran in Polyelectrolyte Microcapsules”; Chemical Engineering Communications, Vol. 196, Issue 7, July 2009, pp. 812-823.
- Ramprasard, S.; Palmer, J.; “A Silicon Microseparator Based Pervaporation Process for Separation of Ethanol/Water Mixtures using a Polymer Membrane”; Separation Science and Technology, Vol. 42 (11), pp. 2483-2499, 2007.
- Forrest, S.; Elmore, B.; Palmer, J.; “Activity and Lifetime of Organophosphorous Hydrolase Immobilized using Layer-by-Layer Nano Self-assembly on Silicon Microchannels”; Catalyst Today, Vol. 120(1), pp. 30-34, 2007.
- Nassar, R.; Hu, J.; Palmer, J.; Dai, W.; “Modeling of Cyclohexene Hydrogenation and Dehydrogenation Reactions in an Open Flow Microreactor System”; Catalyst Today, Vol. 120(1), pp. 121-124, 2007.
- Nagineeni, V.S.; Zhao, S.; Potluri, A.; Liang, Y.; Siriwardane, U.; Seetala, N.; Fang, J.; Palmer, J.; Kuila, D.; “Microreactors for Syn-gas Conversion to Higher Alkanes: Characterization of Sol-gel Encapsulated Nanoscale Fe-Co Catalysts Fabricated in the Microchannels”; Industrial & Engineering Chemistry Research, Vol. 44(15), pp. 5602-5607, 2007.
- Dai, W.; Feng, Z.; Nassar, R.; Palmer, J.; “Modeling of a Binary Melt Crystallization Process”; Numerical Heat Transfer, Part A, Vol. 49, pp. 831-850, 2006.
- Hegab, H.; Napper, S.; Palmer, J.; “Development of a Nanosystems Engineering Undergraduate Degree”; *Innovations in Engineering Education 2005: Mechanical Engineering Education, Mechanical Engineering Technology Department Heads 2005*, pp. 11-16.

- V.S.; Zhao, Nagineni, S.; Liang, Y.; Hu, J.; Aithal, R.K.; Seetala, N.; Fang, J.; Siriwardane, U.; Besser, R.; Varahramyan, K.; Palmer, J.; Nassar, R.; Kuila, D.; “Microreactor Research and Development at Louisiana Tech University: Fabrication of Silicon Microchannel Reactors for Catalyst Studies on Conversion of Cyclohexene and Syngas to Alkanes”; Y. Wang, J. Holladay; Microreactor Technology and Process Intensification No. 914; ACS, September 2005.
- Zeng, L.; Palmer, J.; “Enhancement of Micromixing Tees Using Ultrasound Energy”; Y. Wang, J. Holladay; Microreactor Technology and Process Intensification No. 914; ACS, September 2005.
- Zhao, S.; Hu, J.; Kuila, D.; Besser, R.; Nassar, R.; Palmer, J.; “Nanoscale Platinum Catalyst in Microreactors for Preferential Oxidation of CO for Hydrogen Fuel Cell Feeds”; Y. Wang, J. Holladay; Microreactor Technology and Process Intensification No. 914; ACS, September 2005.
- Forrest, S.; Elmore, B.; Palmer, J.; “Activity and Lifetime of Urease Immobilized Using Layer-by-Layer Nano Self-Assembly on Silicon Microchannels”; Applied Biochemistry and Biotechnology, Vol. 121, Issue 1-3, pp. 85-92, 2005.
- Jones, F.; Forrest, S.; Palmer, J.; Lu, Z.; Elmore, J.; Elmore, B.; “Immobilized Enzyme Studies in a Microscale Bioreactor”; Applied Biochemistry and Biotechnology, Vol. 113, Issue 1-3, pp. 261-272, 2004.
- Gupta, N.; Patel, A.; Nassar, R.; Lvov, Y.; McShane, M.; Palmer, J.; “Study of Transport Phenomena of FITC Labeled Dextran Through Nano Self-Assembled Microshells”; Colloids and Surfaces A: Physicochemical and Engineering Aspects Vol. 245, pp. 137-142, 2004.
- Dai, W.; Feng, Z.; Nassar, R.; Palmer, J.; “A Combined Analytic and Numerical Method for Predicting the Solid Layer Growth from Melt Crystallization”; Numerical Heat Transfer, Part A: Applications, 44: 577-590, 2003.
- Ulrich, R.; Malshe, A.; Gordon, M.; Palmer, J.; Li, J.; “Finite-element Modeling of a Hot Filament CVD Diamond Reactor Optimized for Large Area Deposition”. In Applications of Diamond Films and Related Materials: Third International Conference, eds. A. Feldman, Y. Tzeng, W. A. Yarbrough and M. Murakawa. Elsevier, Amsterdam, 1995. Pp. 673-676.

### **Presentations**

- D. Zhang, J. Palmer, H. Hegab, Y. Lvov, D. Snow; “Immobilization of Cellulase on a Silica Gel Substrate Modified Using a 3-APTES Self-Assembled Monolayer”; 34<sup>th</sup> Symposium on Biotechnology for Fuels and Chemicals, April 29, 2013, Portland OR.
- J. Palmer, H. Hegab; “Teaching Undergraduates Nanomanufacturing Engineering (TUNE)”; National Science Foundation Engineering Education Awardees Conference, March 14<sup>th</sup> 2011, Reston VA.
- Palmer, J.; Hegab, H.; “Developing An Open Ended Junior Level Laboratory Experience to Prepare Students for Capstone Design”; American Society for Engineering Education 2010 Annual Conference, June 23, 2010, Louisville KY.
- J. Palmer, H. Hegab; “Teaching Undergraduates Nanomanufacturing Engineering (TUNE)”; National Science Foundation Engineering Education Awardees Conference, February 1<sup>st</sup> 2010, Reston VA.

- J. Palmer, H. Hegab; “Teaching Undergraduates Nanomanufacturing Engineering (TUNE)”<sup>2</sup>; American Institute for Chemical Engineering Fall National Meeting, November 9<sup>th</sup> 2009, Nashville TN.
- J. Palmer, Y. Lvov, H. Hegab, D. Snow; “Large Scale Reactors to Reduce Cellulosic Ethanol Costs”<sup>2</sup>; Louisiana Tech University Energy Systems Conference 2009, November 5<sup>th</sup> 2009, Shreveport LA.
- J. Palmer, H. Hegab; “Teaching Undergraduates Nanomanufacturing Engineering (TUNE)”<sup>2</sup>; National Science Foundation Engineering Education Awardees Conference, February 1<sup>st</sup> 2009, Reston VA.
- L. Norris; S. Reddy, L. Dale Snow; J. Palmer; “Enzymatic activity of cellulose immobilized on glass using layer-by-layer self-assembly”<sup>2</sup>; 30<sup>th</sup> Symposium on Biotechnology for Fuels and Chemicals, May 4, 2008, New Orleans, LA.
- J. Palmer, S. Reddy, L. Dale Snow; “Enzyme Immobilization in Chemical Microsystems at Louisiana Tech”<sup>2</sup>; AIChE Spring 2007 National Conference, April 25, 2007, Houston TX.
- S. Ramprasard, J. Palmer; “Pervaporation Process in a Microfluidic Device for Dehydration of Ethanol”<sup>2</sup>; North American Membrane Society National Conference, May 17, 2006, Chicago IL.
- K. Vejella, X. Wu, R. Nassar, M. McShane, J. Palmer; “Generation of Mono-dispersed Alginate Microspheres using Microfluidics”<sup>2</sup>; NLPI CIBI/Bio Research Day, May 1<sup>st</sup>, 2006, Shreveport LA.
- S. Reddy; J. Elmore, J. Cook, L. Dale Snow, B. Elmore, J. Palmer; “Urease Immobilization using Layer-by-Layer Nano Self-assembly in a Microfluidic Device”<sup>2</sup>; NLPI CIBI/Bio Research Day, May 1<sup>st</sup>, 2006, Shreveport LA.
- S. Reddy; L. Dale Snow; B. Elmore; J. Palmer; “Improved Analytical Methods and Quantifying Mass Deposition of Urease Immobilized using Layer-by-Layer Nano Self-Assembly”<sup>2</sup>; 28<sup>th</sup> Symposium on Biotechnology for Fuels and Chemicals, April 30, 2006, Nashville, TN.
- J. Palmer; “Chemical Microsystems at Louisiana Tech University”<sup>2</sup>; Invited speaker for Hunter Henry Lecture Series at MS State University, March 28, 2006, Starkville MS.
- K. Vejella, X. Wu, R. Nassar, J. Palmer; “Preparation of Monodispersed Alginate Microspheres”<sup>2</sup>; 2006 AIChE Southern Regional Conference, March 11, 2006, Starkville MS.
- R. Nassar, J. Hu, J. Palmer, W. Dai, “Statistical Modeling of an Open Flow Microreactor System”<sup>2</sup>; 1st International Conference on Experiments/Process/System Modeling/Simulation/Optimization, July 2005, Athens, Greece.
- J. Palmer, B. Elmore, “Enzyme Immobilization using Nano Self-Assembly Applied to Silicon Microreactors”<sup>2</sup>; 19<sup>th</sup> North American Catalyst Society, May 2005, Philadelphia PA.
- Hegab, H.; Napper, S.; Palmer, J.; “Development of a Nanosystems Engineering Degree”<sup>2</sup>; 2005 ASME International Mechanical Engineering Congress and Exposition, Orlando, FL; (conference proceeding subjected to six peer reviewers).
- J. Palmer, “Process Intensification with Microfluidics”<sup>2</sup>; Hunt Guillot & Associates in Ruston LA, November 10, 2004.



- J. Palmer, D. Kuila, J. Fang; “Microseparators”, presentation to ConocoPhillips at Tech, August 2004.
- S. Forrest, B. Elmore, J. Palmer; “Activity and Lifetime of Urease Immobilized using LbL Nano Self-assembled on a Silicon Microchannel”, 26<sup>th</sup> Symposium on Biotechnology for Fuels and Chemicals, May 2004, Breckenridge CO.
- J. Palmer, “Microseparators”, Engineering and Science Foundation meeting, January 24, 2004.
- D. Kuila, J. Palmer, J. Fang, “Microreactors at Louisiana Tech University”, Great Lakes Chemical Company, El Dorado AR, December 19, 2003.
- J. Palmer, “Microseparators”, Innovative Venture Research – PFI meeting at Tech, November 19, 2003.
- S. Ramprasad, S. Forrest, S. Zhao, R. Kumar, Y. Lvov, R. Nassar, B. Elmore, D. Kuila, J. Palmer, “Microreactor and microseparator research at Louisiana Tech’s Institute for Micromanufacturing”, American Chemical Society National 2003 Fall conference, N.Y., N.Y. (invited presentation).
- S. Nayak, E. Stein, N. Gupta, J. Palmer, M. McShane, “Transport of macromolecules through polyelectrolyte microcapsules – effect of molecular size and shell materials”, American Chemical Society National 2003 Fall conference, N.Y., N.Y.
- D. Kuila, J. Fang, T. Cui, K. Varahramyan, U. Siriwardane, R. Nassar, J. Palmer, S. Naidu, V.S. Nagineni, A Potluri, S. Zhao, Y. Liang, W. Cao, J. Hu, “Microreactor Research at Louisiana Tech University’s Institute for Micromanufacturing, American Chemical Society National 2003 Fall conference, N.Y., N.Y.
- V. Nagineni, R. Goduguchinta, S. Zhao, R. Aithal, Y. Liang, J. Fang, S. Vegesna, U. Siriwardane, S. Naidu, J. Palmer, D. Kuila, “Microreactor with sol-gel encapsulated catalysts for syn-gas conversion to higher alkanes”, American Chemical Society National 2003 Fall conference, N.Y., N.Y.
- J. Palmer, “Microreactor and Nanotechnology Research at Tech”, Army’s Edgewood Chemical Biological Center, Maryland, July 30, 2003.
- R. Nassar, J. Palmer, W. Dai, M. McShane, N. Gupta, Y. Lvov, “Modeling of FITC-Dextran Release in Polyelectrolyte Nanocapsules”, Hawaii International Conference on Statistics and Related Fields, Honolulu, Hawaii, June 5-8, 2003.
- Palmer, J.; Ramprasad, S.; Forrest, S.; “Pervaporation of Ethanol/Water in a Chemical Microsystem”, Proceedings for the AIChE Spring 2003 National Conference; New Orleans, LA; April 1, 2003.
- Gupta, N.; Patel, A.; L’vov, Y.; McShane, M.; Palmer, J.; “Study of Transport Phenomena of FITC Labeled Dextran Through Nano Self-Assembled Microshells”; Proceedings for the AIChE Spring 2003 National Conference; New Orleans, LA; April 1, 2003.
- Gupta, N.; Patel, A.; L’vov, Y.; McShane, M.; Palmer, J.; “Study of Transport Phenomena of FITC Labeled Dextran Through Nano Self-Assembled Microshells”; 58<sup>th</sup> Southwest American Chemical Society Regional Meeting, November 3-6, 2002.

- Ramprasad, S.; Palmer, J.; “Microscale Ethanol/Water Separation by Pervaporation”; Louisiana Conference on Commercial Applications of Microsystems, Materials, and Nanotechnologies, Oct 21-22, 2002.
- D. Kuila, J. Palmer, “Chemical Microsystems at Louisiana Tech University”, Gaylord Chemical Corporation; Bogalusa LA, Feb. 7, 2002.
- J. Palmer, “Chemical Microsystems at Louisiana Tech University”, University wide Brown Bag Lunch organized by Dr. Linda Ramsey, November 5, 2001.
- J. Palmer, L. Zeng, “Comparison of Micromixer with Conventional Static Mixer for Use in Fast Competitive Reactions,” SPIE, October 2001
- J. Palmer, L. Zeng, “Design and Fabrication of a Micromixer for Chemical Synthesis in Highly Corrosive Environments,” 2<sup>nd</sup> Louisiana Conference on Microfabrication and Materials Science, August 2001
- J. Palmer, J. Maples, B. Sexton, R. Garner, R. Penny, “Comparison of Mixing Performance of a Small Diameter Mixing Tee Versus a Commercial Static Mixer,” TexMEMS, June 2001.
- J. Palmer, “Crystallization in Industry”, Sigma Xi Chapter at Louisiana Tech University, May 17, 2001.
- J. Palmer, “Microreactors at Louisiana Tech”, CFD Research Corporation, Huntsville, AL, March 2001.
- J. Palmer, J. Li, R. Ulrich, “Finite-Element Modeling of a Hot Filament CVD Diamond Reactor Optimized for Large Area Deposition,” Applications of Diamond Films and Related Materials, NIST August 1995.
- G. Zhao, J. Palmer, D. Nelms, R. Ulrich, “Aerosol MOCVD Feed System for Forming Superconducting Thin Films,” 185<sup>th</sup> Electrochemical Society Meeting, May 1994.

#### **Dissertation/Thesis Chaired**

- Rugma Satheesh, MS CMEN, November 2013, Thesis “Process Intensification in Biodiesel Production – A Microfluidic Approach”
- Shaila Reddy, MS CMEN, May 2008, Thesis “Urease Immobilized by Layer-by-Layer Nano Self-Assembly in Microchannels”
- Sudhir Ramprasad, Ph.D. Engineering, November 2006, Dissertation “Investigation of Ethanol Dehydration in a Microscale Pervaporation Process”
- Kalyani Vejella, MS CMEN, November 2006, Thesis “Development of a Continuous Process for Manufacture of Monodisperse Enzyme (GOx) Loaded Calcium-Alginate Microspheres”
- Ravi Kumar Dokku, MS CMEN, March 2005, Thesis “Removal of Organophosphorous Pesticides by a Microscale Reverse Osmosis Membrane Separator/Concentrator”
- Anita Alfred, MS CMEN, March 2005, Thesis “Design & Development of a Microfluidic Device for the Production of Monodisperse Alginate Microparticles”
- Scott Forrest, Ph.D. Engineering, May 2004, Dissertation “Silicon Based Micro Components for use in Chemical Agent Detection”

- Nitin Gupta, MS CMEN, November 2003, Thesis “Release Phenomenon of FITC-Labeled Dextran Through Nano Self-Assembled Polyelectrolyte Microcapsules”
- Shihuai Zhao, Ph.D. Engineering, May 2003, Dissertation “Nano-scale Platinum and Iron-Cobalt Catalysts Deposited in Microchannel Microreactors for use in Hydrogenation and Dehydrogenation of Cyclohexene, Selective Oxidation of Carbon Monoxide and Fischer-Tropsch Process to Higher Alkanes”
- Amish Patel, MS CMEN, November 2002, Thesis “Transport Phenomena of FITC-Labeled Dextran Through Nano Self-Assembled Microshells”
- Lixiao Zeng, MS CMEN, July 2002, Thesis “A Comparison of 100  $\mu\text{m}$ , 177  $\mu\text{m}$ , and 254  $\mu\text{m}$  Micromixers for use in Fast Competitive Chemical Reactions”

## Service

### a. College/university service

- Tech 2020 Working Group 1.1 Facilitator (Fall 2010)
- CORE team and GRAD member (2008+)
- Department Head for Management of Engineering Management of Technology (2008 to 2010)
- Department Head for Ph.D. in Engineering (2006 to 2011)
- University Graduation Marshal (2005 to present)
- Chemical Engineering Program Chair (2004 to 2011) – responsible for program courses, scholarships, and graduate admissions.
- COES Leadership Team Associate (Fall 2005, Winter 2007/08)
- CORE team member (2004/05)
- University Senate – January 2004 to finish Dr. Cui’s 2004 term
- COES Leadership Team Associate (Fall 2002 to December 2002)
- Engineering and Science Foundation Faculty Representative (Fall 2002 to 2006)
- Led CMEN/IfM Faculty Search 2002-03
- Member of KSD 7 Team 2002-03
- Member of KSD 2 Team 2003-04
- Graduate coordinator for Chemical Engineering Program 2003-present
- Chemical Engineering representative to B.S. Nanosystems Engineering curriculum development
- With Dr. Cui, organized and administered Ph.D. qualifying exam March 20, 2003
- American Institute for Chemical Engineers student advisor 2001-2005
- Member of COES lab team 2001-02
- Participated in “Time out for Tech” Fall 2001

### b. Professional service

Panel reviewer:

- National Science Foundation – RET (January 2013)
- National Science Foundation – NUE (July 2009, July 2010, July 2012)

- National Science Foundation – REU (December 2009, November 2010, November 2011, November 2012)

Journal reviewer:

- Process Biochemistry (2005)
- ACS book chapter on Process Intensification, Y. Wang, PNNL Editor (2004)
- Applied Biochemistry and Biotechnology (2004, 2012)
- Reviewed one undergraduate fluids textbook for McGraw-Hill (2004)
- Colloids and Surfaces A: Physicochemical and Engineering Aspects (2003)
- Reactive and Functional Polymers (2002)

Proposal reviewer:

- US Civilian Research and Development Foundation (2005)
- American Association for the Advancement of Science (2005)