

## **Education**

Ph.D. Chemical Engineering, July, 1993  
University of Pittsburgh, Pittsburgh, PA.  
Thesis Title: *Characterization of a Non-Ionic Surfactant Reversed Micellar System for the Enzymatic Degradation of Pesticides*  
Advisor: Dr. Alan J. Russell

M. S. Chemical Engineering, 1990  
University of Pittsburgh, Pittsburgh, PA  
Thesis: *Fiberoptic Fluorescence Signal Enhancement with a Distal Mirror*  
Advisor: Dr. Jerome S. Schultz

B. S. Chemical Engineering, 1985  
Tufts University, Medford, MA  
Undergraduate Honors - Cum Laude, Burden Prize winner for undergraduate research

## **Professional Experience**

Visiting Scholar (Fulbright-Nehru Award)  
Department of Chemical Engineering  
**IIT Delhi, India** 10/14 – 4/15

Professor Fall 2012 -  
Department of Chemical and Materials Engineering  
**San Jose State University**  
San Jose, CA

Visiting Scientist  
**Genencor, A Danisco Division** (Fermentation Group) Fall 2007-Fall 2008

Associate Professor Fall 2005 –Fall 2012  
Department of Chemical and Materials Engineering  
**San Jose State University**  
San Jose, CA

Assistant Professor Fall 1999 – Fall 2005  
Department of Chemical and Materials Engineering  
**San Jose State University**  
San Jose, CA

Research Engineer September 1996 – June 1999  
Central Research & Development, Bioprocess Engineering Group  
**DuPont Corporation**

Claire F. Komives, SJSU

Wilmington, DE

AAAS Science and Diplomacy Fellow  
Office of Health - Child Survival Division  
**U. S. Agency for International Development**  
Washington, DC

August, 1995 - August, 1996

Postdoctoral Fellow  
Institute for Biotechnology, Advisor: James E. Bailey  
**Swiss Federal Institute of Technology Zürich (ETH)**  
NSF Division of International Programs Fellowship  
Zürich, Switzerland

August, 1993 - July 1995

8/93 - 7/94

### Awards

Don Eden Award for Excellence in Teaching (2009)

### Publications and Presentations

#### ***Peer-Reviewed Publications (partial list)***

Claire Komives; **Inquiry-based laboratory for teaching students design-of-experiments**; Journal of Engineering Education Transformations, 28(2-3), 2015, pp. 1-6.

Ahmet Bozdog; Claire Komives; Michael C. Flickinger, "**Bacillus methanolicus can grow on 2 M methanol and the ribulose monophosphate pathway may limit the rate of detoxification of formaldehyde at high methanol concentration**" Journal of Industrial Microbiology and Biotechnology (submitted for publication, October 2014).

Dewi Nilasari\*\*, Nir Dover, Sabine Rech, Claire Komives (CK correspondence author); **Expression of Recombinant Green Fluorescent Protein in Bacillus Methanolicus**; Biotechnology Progress, 28(3), 2012,662-668.

Claire Komives, Moira Walsh; **Application of Classical Realist Philosophy Principles to Engineering Ethics**, No. 2011-2571; ASEE Annual Conference Vancouver BC, Canada, 2011

Claire Komives, Michael J. Prince, Theresa A. Good, Laurent Simon, John P. O'Connell, Jeffrey J. Chalmers, Erik J. Fernandez, **Biology across the curriculum: Preparing students for a career in the life sciences**, No. 2011-2605; ASEE Annual Conference Vancouver BC, Canada, 2011

Claire Komives, Michael J. Prince, Erik J. Fernandez, Robert Balcarcel; Integration of Biological Applications into the Core Undergraduate Curriculum: A Practical Strategy, **Chemical Engineering Education**, Vol. 45, No. 1, Winter 2011.

Claire F. Komives, SJSU

Claire Komives, Erik Fernandez, Bioengineering Educational Materials Bank, Proceedings of the ASEE 2009 Annual Conference and Exposition, NSF Grantees Poster Session, Paper 2325

Claire Komives, Erik Fernandez, Students Create Problems for Teaching and Learning, Proceedings of the ASEE 2009 Annual Conference and Exposition, Chemical Engineering Division, Paper 2331

Thalia Anagnos, Claire Komives, Nikos J. Mourtos, Kurt M. McMullin, Evaluating Student Mastery of Design of Experiment, Proceedings of the 37th ASEE/IEEE Frontiers in Education Conference, October 10-13, 2007, Milwaukee, WI, pp. TIA1-5.

Claire Komives, *Biochemical Engineering Laboratory Course for Chemical Engineering Students*, **Proceedings of the 9th International Conference on Engineering Education**, July 23-28, 2006, SJ Puerto Rico, pp. M3F 22-27.

Claire Komives, Katy Korsemeier, *Bioprocess Technology Course for High School and Community College Teachers*, **Proceedings of the 9th International Conference on Engineering Education**, July 23-28, 2006, SJ Puerto Rico, pp. R3D 8-13.

Claire Komives, Nikos Mourtos, Thalia Anagnos & Kurt M. McMullin, *Enhancing Inquiry Skills in Engineering through a University-School District Partnership*, **Proceedings of the 9th International Conference on Engineering Education**, July 23-28, 2006, SJ Puerto Rico, pp R4B 1-6.

Chris W. Lehman, Jaquelina D.R. Lee\*\*, & Claire F. Komives, Ubiquitously expressed GPCR membrane-trafficking orthologs, **Genomics**, 85(3), 2005, pp. 386-391.

Claire Komives, Louis Yip-Yan Cheung\*\*, Stefanie Plushkell and Michael Flickinger, *Growth of B. Methanolicus Strain PB1 in Salt Water-Based Medium*, **Journal of Industrial Microbiology and Biotechnology**, 32(2), 2005, pp. 61-66.

Claire Komives, Sabine Rech, and Melanie McNeil, *Laboratory Experiment on Gene Subcloning for Chemical Engineering Students*, **Chemical Engr. Education**. Summer 2004, pp. 212 - 221.

Claire Komives and Ruizhen Chen; *Biocatalysis*, **Encyclopedia of Biomaterials and Biomedical Engineering**, Gary Wnek and Gary Bowlin, eds., Marcel Dekker, Inc., 2004, pp. 72-78.

Claire Komives and Robert Parker; *Bioreactor State Estimation and Control*, **Current Opinion in Biotechnology**, Elsevier Science London, 14(5), 2003, pp. 468 - 474.

C. Komives, D. Osborne, A. J. Russell, *Degradation of Pesticides in a Continuous-Flow Two-Phase Microemulsion Reactor*, **Biotechnology Progress** 10, 1994, 340 - 343.

Claire F. Komives, SJSU

C. F. Komives, E. Lilley, A. J. Russell, *Biodegradation of Pesticides in Nonionic Water-in-Oil Microemulsions of Tween 85: Relationship Between Micelle Structure and Activity*, **Biotechnology and Bioengineering** 43, 1994, 946 - 959.

C. F. Komives, D. E. Osborne, A. J. Russell, *Characterization of a Nonionic Surfactant Reversed Micellar System for Enzyme Catalysis*, **J. Physical Chemistry** 98(1), 1994, 369 - 376.

***Refereed Presentations and Publications (partial list)***

Claire Komives, Erik Fernandez, *BIOEMB Project – Introducing New Curricular Ideas into Undergraduate Education*; Accepted for Presentation at the AIChE Annual Meeting, Minneapolis, MN October 16-21, 2011.

Dewi Nilasari, Nir Dover, Claire Komives, Expression of Green Fluorescent Protein in *B. methanolicus*, CSUPERB Annual Conference 2011, Poster presentation

Ankit Patel, Claire Komives, Growth of *B. methanolicus* in seawater-based medium in a bioreactor, CSUPERB Annual Conference 2011, Poster presentation

Claire Komives, Ethics Education for Chemical Engineering Undergrads, (paper 247h) presentation given at the 2010 AIChE Annual Conference, Salt Lake City, UT

Justin Nakamura, Claire Komives, Dr. Deirdre O'Sullivan, Dr. Joumana Zeid, Polly Mak, Characterization of virucidal heat treatment of a recombinant protein, 239<sup>th</sup> American Chemical Society National Meeting, San Francisco, CA; March 21-215, 2010.

Claire Komives, Erik J. Fernandez, Bioengineering Educational Materials Bank, Biochemical Engineering XVI, Burlington, VT, July 5-9, 2009.

Claire Komives, Use of a Generalized Rubric for Teaching Students to Design Experiments, 2008 AIChE Annual Meeting, Philadelphia, PA, paper 532b, session "Designing Experiments in the Laboratory."

Claire Komives, Erik J. Fernandez, "Bringing Life into the Chemical Engineering Curriculum: BioX Meets Material and Energy Balances," 2007 AIChE Annual Meeting, Salt Lake City, UT, Paper #201b in Symposium Honoring CACHE Award Recipients Invited Papers.

Claire Komives, Robert Beitle, Erik J. Fernandez, "BioX for all: no chemical engineering student left behind," Biochemical Engineering XV, Quebec City, Canada, July 15-19, 2007.

Harjot S. Bhullar, Gee Lyn Echaluze, Nimoal Sun, Khe Dinh, Ula Odeh, Michael Jennings, Claire Komives; "Fuel-Grade Ethanol Using New Technologies," 2006 AIChE Annual Meeting, San Francisco, CA, Paper #611g in Separation of Processing Streams Derived from renewable feedstocks.

Claire Komives, Sabine Rech, Melanie McNeil, Biochemical Engineering Laboratory (poster), Biochemical Engineering XIV, Harrison Hot Springs, BC July 10-14, 2005

Dr. Claire Komives, "Towards an Artificial Nose Sensor Based on Olfactory GPCR's" Cambridge Healthtech Institute's 2<sup>nd</sup> Annual "GPCRs: **From Orphan to Blockbuster** June 7-8, 2004; Boston, Massachusetts (CK gave oral presentation)

C. Komives, C. Y. Wang, "Control of Methanol Feed for *Bacillus methanolicus* Fermentation with an Adaptive Control Model", 2003 AIChE Annual Meeting, San Francisco, CA, Paper #441d in Advances in Sensors, Optimization and Control for Biological Systems session.

C. Komives, J. Lee, C. Lehman; Cloning and functional expression of olfactory receptors for use in a biosensor (Poster); Biochemical Engineering XIII, Boulder, CO July 19 - 23 2003

Melanie McNeil, Art Diaz, Michael Jennings, and Claire Komives; *Environmental Health and Safety and Biochemical Engineering with a Chemical Engineering Foundation, Proceeding of the 2002 American Society for Engineering Education Annual Conference and Exposition; 2002 ASEE Annual Conference and Exposition, Montreal, Quebec, Canada. Paper #349.*

W. Dewhirst, C. Komives, *Production of Carotenoids in Thermophilic Bacteria*, 2002 Society of Industrial Microbiology Annual Meeting, Philadelphia, PA, August 11-15, 2002.

C. Komives, M. A. McNeil, *Biotech Education for Teams of Scientists and Engineers*, 2001 AIChE Annual Meeting, Reno, NV, November 4-9, 2001.

C. Komives, *Enzymes in Organic Solvents get on with Business* (book review), **Trends in Biotechnology** Vol. 19 No. 9, 2001, p. 373.

C. Komives and J. Dvorak, *Peace Begins with Life*, **XXV UNIV** International University Congress, April 12-19, 1992, Rome, Italy.

### ***Non-Refereed Presentations and Publications (partial list)***

Claire Komives, New Tools for Bioprocess Scale-down, Dr. Reddy Laboratories, Hyderabad, India, March 5, 2015. (Invited)

Claire Komives, Development of a low cost snake antivenom for India; IIT Delhi Dept of Chemical Engineering (January 2015) (Invited)

Claire Komives, New Tools for Bioprocess Scale-down, Bioprocessing India 2014, Mumbai, India, December 2014. (Keynote Invited)

Ankit Patel\*\*, James Yeary\*\*, Claire Komives; *Growth of B. methanolicus MGA3 in seawater-*

Claire F. Komives, SJSU

*based medium in a bioreactor*, AIChE Annual Meeting, Minneapolis, MN; October 16-21, 2011.

Dewi Nilasari\*\*, Nir Dover, Claire Komives; *Expression of Green Fluorescent Protein in Bacillus Methanolicus*, 241<sup>st</sup> American Chemical Society Conference, Anaheim, CA; March 27-31 2011.

Claire Komives, *Bioprocess design for a thermotolerant methylotrophic organism*, U. C. Riverside; May 28, 2010 (invited).

Dewi Nilasari\*\*, Nir Dover, Claire Komives; *Expression of Green Fluorescent Protein in Bacillus methanolicus*, 241<sup>st</sup> American Chemical Society Conference, Anaheim, CA; March 27-31 2011.

Brian Wong\*\*, Dewi Nilasari\*\*, Claire Komives; *Investigation of protein expression on Bacillus methanolicus, a thermotolerant methylotroph*, 241<sup>st</sup> American Chemical Society Conference, Anaheim, CA; March 27-31 2011.

Ankit Patel\*\*, Chi-on Chiu\*\*, Claire Komives; *Characterization of growth of Bacillus Methanolicus in high salt media*, 241<sup>st</sup> American Chemical Society Conference, Anaheim, CA; March 27-31 2011.

Claire Komives, *Connecting Research to Curriculum* (invited), presentation to the NASA Science & Technology Institute Faculty Fellows as part of the **NSTI Faculty Fellowship Professional Development Series**, June 24, 2009, Mountain View, CA.

C. Komives, *Control of Dynamics of Olfactory Response: Modeling and Experimental Validation*, Tufts University, Department of Chemical Engineering, June 9th, 2004

Claire Komives, Luong Tran\*\*; "Laboratory module to teach undergraduates metabolic flux analysis of fermentation", American Chemical Society 227th National Meeting, Anaheim, CA; March 31, 2004. paper #231 (Poster), Department of Biochemical Technology

C. Komives, *Towards an Artificial Nose Based on Olfactory Receptors*, Lawrence Livermore National Laboratory - Biosecurity and Nanoscience Laboratory Seminar, October 6th, 2003 (Invited)

C. Komives, *Biotechnology at DuPont*, UC Davis Annual Biotechnology Retreat, Christian Brothers Retreat Center, May 15, 1999.

Claire F. Komives, *A Study of the Role of Cyclin E Overexpression in the Adaptation of Chinese Hamster Ovary Cultures for Growth in Serum-Free Medium*, National Science Foundation Final Project Report, Division of International Programs, Award Number: 9301183, ETH Zurich, August 5, 1999.

C. Komives, *Bioreactor State Estimation and Control at DuPont Life Sciences*, University of Arkansas Dept. of Chemical Engineering, October 23, 1998.

B. Bock, C. Komives, D. O'Brien, Middle East Research in Infectious Diseases (MERID) Final Evaluation Report, Project #298-0158.18, The Global Bureau, U. S. Agency for International Development, March 1996. (C.K. responsible for the technical section of the report)

C. Komives, *Development of CHO Cell Lines for Suspension Culture in Serum- and Protein-Free Medium: Effect of Cyclin E Overexpression*, University of Pittsburgh Dept. of Chemical Engineering, September 29, 1995.

### **Patents**

C. Komives, J. S. Schultz, *Optical fiber sensors for continuous monitoring of specific biochemicals and related method*, U. S. Patent No. 5,143,066, September 1, 1992.

C. Komives, A. J. Russell, *Centrifugal multiphase systems and method of using the same*, U. S. Patent No. 5,510,247, April 23, 1996.

### **Grants Awarded (partial list)**

C. Komives(PI), "CCLI: Educational Materials to Enhance Chemical Engineering Curricula with Applications in Biological Engineering" (NSF 0817561); January 2009. The three-year project, funded at \$500K, is a collaborative research project among six universities - SJSU (lead), NJIT, UVA, OSU, UMBC and Bucknell.

C. Komives(PI), S. Rech, "LC/MS-based isotopomer analysis of bacteria for enhanced product formation" (\$25,000) (CSUPERB), Joint Venture Grant (with Genencor, Int'l), Summer 2007.

C. Komives(PI), E. Fernandez, "CCLI: Educational Materials to Enhance Chemical Engineering Curricula with Applications in Biological Engineering" (\$150,000) (NSF 0063373); January 2007.

C. Komives(PI), C. Lehman (Pangene Corporation), "Cloning and expression of olfactory GPCR's in CHO cells", California State University Program in Education and Research in Biotechnology (CSUPERB) Joint Venture Grant, (Total funds \$14,600 from CSUPERB and \$105,000 (equivalent value of technology) from Pangene), Summer 2002.

C. Komives, Agilent University Philanthropic Grant (No. 101222.1) for a 1100 LC/MSD SL ESI System (Liquid Chromatography/Mass Spectrometer Analyzer) and 2100 Bioanalyzer System (total value \$203,000). Spring 2002

C. Komives, M. McNeil and S. Rech, NSF CCLI grant for "Acquisition of Equipment for a Bioprocess Engineering Laboratory", (NSF 0088653, \$175,000) Spring 2001 (CSUPERB costshare at \$40,000 over three years)

### **Workshops and Short Courses**

Claire F. Komives, SJSU

C. Komives, Preparation for Accreditation, Eight Criteria and Outcomes Assessment  
Delivered at 6 Institutions in India

K L University (Vijayawada) Jan 27, 2015

JRE College of engineering, (Greater Noida) Feb 11, 2015

Netaji Subhas Institute of Technology (Dwarka) (Feb 19, 2015)

Madanapalle Institute of Technology and Science, Feb 24, 2015

Manipal University Jaipur (Feb 27, 2015)

Aditya Institute of Technology and Management (Tekkali), Mar 9, 2015

RK University Rajkot, Gujarat, April 11, 2015

Jaypee University of Information Technology, Waknaghat, April 15, 2015

C. Komives, Chemical Engineering for Scientists, Dupont Biosciences (formerly Genencor, Intl.),  
July 22-24, 2013 and August 2014, Palo Alto, CA

C. Komives, S. Ozturk, Design of Fermentation and Cell Culture Processes, ACS BIOT Short  
Course, March 26, 2011, Anahiem, CA

C. Komives, Bioprocess Technology Short Course for High School and Community College  
Teachers, July 12-14, 2006, San Jose State U.