Wilfred Chen
Professor

Degrees

Ph.D., Chemical Engineering, California Institute of Technology, 1993
B.S., Chemical Engineering, UCLA, 1988

University of California, Riverside, Service

Assistant Professor, II-IV, 1/1/1994-6/30/98
Associate Professor, I-III (OS), 7/1/1998-6/30/2002
Professor, I-V (OS), 7/1/2002-Present

Other Professional Experience

Swiss Federal Institute of Technology, Institute of Biotechnology. Postdoctoral Research Associate (Nov 1992-Nov 1993).

Consulting and Patents

Wilfred Chen, Pauli Kallio and James E. Bailey, Construction and Characterization of a Novel Cross-Regulation System for Regulating Cloned-Gene Expression in *E. coli*, *Gene*, **130**, 15-22, 1993.

Registrations

None

Publications (A total of 116 Journal Papers)

1. Richard Richins, Irina Kaneva, Ashok Mulchandani, and **Wilfred Chen**, Biodegradation of Organophosphorus Pesticides by Surface-Expressed Organophosphorus Hydrolase, *Nature Biotechnology*, **15**, 984-987, 1997.
2. Jan Kostal, Ashok Mulchandani, and **Wilfred Chen**, Tunable Biopolymers for Heavy Metal Removal, *Macromolecules*, **34**, 2257-2261, 2001.
3. Catherine M-H. Cho, Ashok Mulchandani, and **Wilfred Chen**, Bacterial cell surface display of organophosphorus hydrolase for selective screening of improved hydrolysis of organophosphate nerve agents, *Appl. Environ. Microbiol*., **68**, 2026-2030, 2002.
4. Jan Kostal, Ashok Mulchandani, Katie E. Gropp, and **Wilfred Chen**, A temperature responsive biopolymer for mercury removal, *Environ. Sci. Tech.*, **37**, 4457-4462, 2003.
5. Kumaran Ramanathan, Mangesh Bangar, Minhee Yun, **Wilfred Chen**, Ashok Mulchandani, and Nosang V. Myung, Individually addressable conducting-polymer nanowires array, *Nano Letters*, **4**, 1237-1239, 2004.
6. Jae-Young Kim, Sean O'Malley, Ashok Mulchandani, and **Wilfred Chen**, Genetically engineered elastin-protein A fusion as a universal platform for homogeneous, phase-separation immunoassay, *Anal. Chem*., **77**, 2318-2322, 2005.

7. Di Gao, Nicole McBean, Jerome S. Schultz, Yushan Yan, Ashok Mulchandani, **Wilfred Chen**, Fabrication of Antibody Arrays Using Thermally Responsive Elastin Fusion Protein, *J. Am. Chem. Soc*., **128**, 676-677, 2006.

Professional Societies

American Institute of Chemical Engineers, American Chemical Society, American Society of Microbiology

Honors and awards

Mathematical Department Award, Los Angeles Valley College, 1985
Norman Chemistry Award, Los Angeles Valley College, 1985
Munson Memorial Scholarship, UCLA, 1987
Outstanding Junior Award in Chemical Engineering, UCLA, 1987
Chevron Outstanding Senior Award in Chemical Engineering, UCLA, 1988
National Institutes of Health Predoctoral Traineeship, California Institute of Technology, 1990 – 1992
NASA Certificate of Recognition, 1995
UC Regents Faculty Development Award, 1995/1996
NSF Career Award, 1997
UC Regents Faculty Development Award, 1997/1998
Special Award, UC Toxic Substance Research and Teaching Program, 1997/1998
Participant National Academy of Engineering's 4th Annual Symp. on Frontiers of Engineering, 1998
Invited Participant of the Fifth Annual U.S./Japan Frontiers of Engineering Symposium, 2005

Selected Service

UCR
Graduate Advisor, September 1998-2004, 2005-Present
Chair, Department Seminar Series, 1997, 1999, 2002, 2004
Chair, Faculty Search Committee, 1998, 2000, 2002, 2005
Member, University Planning and Budget Committee, 2004-Present
UCR Primary Campus representative to the Research Council of UC BioStar Program

External
NSF Sensors and Sensor Networks Panel, Bioengineering Division, June 7, 2005.
NIH R21 grant study section for biofilm/microbiology and periodontal disease, July 18, 2005
USDA Air, Water, and Soil SBIR Panel, February 9-10, 2006

Professional Development

Annually attending American Institute of Chemical Engineer meeting, annually attending American Chemical Society meeting, chairing sessions at these meetings and giving invited lectures at USC, UCLA, Rice, UIUC, RPI, Penn State, etc.

David R. Cocker III
Associate Professor

Degrees

Ph.D., Environmental Eng. Sci., California Institute of Technology, 2001
M.S., Environmental Eng. Sci., California Institute of Technology, 1998
B.S., Environmental Engineering, UC Riverside, 1996
B.S., Chemistry, UC Riverside, 1996

University of California, Riverside, Service

Assistant Professor, II, 1/1/2001
Assistant Professor, III, 7/1/2002
Assistant Professor, IV, 7/1/2004
Associate Professor I, 7/1/2006

Other Professional Experience

1996. Postgraduate Researcher, University of California, Riverside, Bourns College of Engineering-Center for Environmental Research and Technology.

1996. Lecturer, University of California, Riverside, Chemical and Environmental Engineering Department.

Consulting and Patents

None

Registrations

EIT, California

Publications

D.R. Cocker, R.C. Flagan, J.H. Seinfeld*, "State-of-the-art Chamber Facility for Studying Atmospheric Aerosol Chemistry," *Environmental Science and Technology*, 35, 2594-2601, 2001.

D.R. Cocker, N. Whitlock, R.C. Flagan, J.H. Seinfeld*, "Hygroscopic Properties of Pasadena, California Aerosol," *Aerosol Science and Technology*, 35, 637-647, 2001.

D.R. Cocker, S.L. Clegg, R.C. Flagan, J.H. Seinfeld*, "The Effect of Water on Gas-Particle Partitioning of Secondary Organic Aerosol: I. α-Pinene/Ozone System," *Atmospheric Environment*, 35, 6049-6072, 2001.

J.L. Jimenez, R. Bahreini, **D.R. Cocker**, H. Zhuang, V. Varutbangkul, R.C. Flagan, J.H. Seinfeld*, C.D. O'Dowd, T. Hoffmann, "New Particle Formation from Photooxidation of Diiodomethane (CH_2I_2)" *Journal of Geophysical Research*, 108, #4318, 25, 2003.

D. Sharma, A.A. Sawant, R. Uma, **D.R. Cocker***, "Preliminary Chemical Characterization of Particle-Phase Organic Compounds in New Delhi, India," *Atmospheric Environment*, 37, 4317-4323, 2003.

K. Na, A.A. Sawant, C. Song, **D.R. Cocker***, "Primary and Secondary Carbonaceous Species in the Atmosphere of Western Riverside County, California," *Atmospheric Environment*, 38, 9, 1345-1355, 2004.

D.R. Cocker*, S.D. Shah, K. Johnson, J.W. Miller, J.M. Norbeck, "Development and Application of a Mobile Laboratory for Measuring Emissions From Diesel Engines I. Regulated Gaseous Emissions," *Environmental Science and Technology*, 38, 7, 2182-2189, 2004.

D.R. Cocker*, S.D. Shah, K. Johnson, X. Zhu, J.W. Miller, J.M. Norbeck, "Development and Application of a Mobile Laboratory for Measuring Emissions From Diesel Engines II. Sampling for Toxics and Particulate Matter," *Environmental Science and Technology*, 38, 6809-6816, 2004.

K. Na, A.A. Sawant, **D.R. Cocker***, "Trace Elements in Fine Particulate Matter within a Community in Western Riverside County, CA: Focus on Residential Sites and a Local High School," *Atmospheric Environment*, 38, 18, 2867-2877, 2004.

S.D. Shah, **D.R. Cocker***, J.W. Miller, J.M. Norbeck, "Emission Rates of Particulate Matter and Elemental and Organic Carbon from In-Use Diesel Engines," *Environmental Science and Technology*, 38, 9, 2544-2550, 2004.

D.R. Collins*, **D.R. Cocker**, R.C. Flagan, J.H. Seinfeld, "The Scanning DMA Transfer Function," *Aerosol Science and Technology*, 38, 8, 833-850, 2004.
A.A. Sawant, K. Na, X. Zhu, K.M. Cocker, S. Butt, C. Song and **D.R. Cocker***, "Characterization of $PM_{2.5}$ and Selected Gas-phase Compounds at Multiple Indoor and Outdoor Sites in Mira Loma, California," *Atmospheric Environment*, 38, 37, 6269-6278, 2004.
A.A. Sawant, K. Na, X. Zhu, **D.R. Cocker***, "Chemical Characterization of Outdoor $PM_{2.5}$ and Gas-Phase Compounds in Mira Loma, California," *Atmospheric Environment*, 38, 33, 5517-5528, 2004.
C. Song, K. Na, **D.R. Cocker***, "Impact of the Hydrocarbon to NO_x Ratio ($HC:NO_x$) on Secondary Organic Aerosol Formation," *Environmental Science and Technology*, 39, 3143-3149, 2005.
S.D. Shah, T. Ogunyoku, J.W. Miller, **D.R. Cocker***, "On-Road Emission Rates of PAH and n-Alkane Compounds From Heavy-Duty Diesel Vehicles," *Environmental Science and Technology*, 39, 5276-5284, 2005.
K. Na, **D.R. Cocker***, "Organic and Elemental Carbon Concentrations in Fine Particulate Matter in Residences, Schoolrooms, and Outdoor Air in Mira Loma, California," *Atmospheric Environment*, 39, 3325-3333, 2005.
S.D. Shah, **D.R. Cocker***, "A Fast Scanning Mobility Particle Spectrometer for Monitoring Particle Size Distributions From Vehicles," *Aerosol Science and Technology*, 39, 519-526, 2005.
W.P.L. Carter*, **D.R. Cocker**, D. Fitz, I. Malkina, K. Bumiller, C. Sauer, J. Pisano, C. Bufalino, C. Song, "A New Environmental Chamber for Evaluation of Gas-Phase Chemical Mechanisms and Secondary Aerosol Formation," December, *Atmospheric Environment*, 40:7768-7788, 2005.
S.D. Shah, **D.R. Cocker***, K.C. Johnson, J.W. Miller, J. Lee, B. Soriano, "Emissions of Regulated Pollutants from In-Use Diesel Back-Up generators," May, *Atmospheric Environment*, in Press, 2006.
K. Na, C. Song, **D.R. Cocker***, "Formation of Secondary Organic Aerosol from the Reaction of Styrene with Ozone in the Presence and Absence of Ammonia and Water," March, *Atmospheric Environment*, 40, 1889-1900, 2006.
S.D. Shah, K. Johnson, J.W. Miller, **D.R. Cocker***, "Emission Rates of Regulated Pollutants from On-Road Heavy-Duty Diesel Vehicles," December, January, *Atmospheric Environment*, 1:147-153, 2006.

Professional Societies

Air and Waste Management Association
American Association for Aerosol Research

Honors and awards

National Science Foundation Graduate Fellowship, 1996-1999
Marlan and Rosemary Bourns College of Engineering Excellence in Teaching Award, 2004 – 2005
AEDC 2005 Annual Technical Achievement Award
NSF Early Career Development Award, 2005 – 2010

Service

ENVE undergraduate advisor (2002-2003); CEE undergraduate advisor (2003-current), ABET committee (2003-current), CEE undergraduate committee (2001-current), college undergraduate committee (2001-current), college executive committee (2001-2003, 2005-current), AWMA student chapter advisor (2003-current), undergraduate scholarship committee (2001-current), CE-CERT academic committee (2001-current), Space committee (2005-current), Faculty search committee (2002-2003, 2005-current), Transport phenomena preliminary exam committee, General education committee (2005-current)

Professional Development

Attended NSF CAREER workshop in Tucson, Arizona, 2003. Provided training on grant writing and mentorship of students.

Marc Deshusses
Professor

Degrees
Ph.D., Chemical Engineering, Swiss Federal Institute of Technology, Zurich, 1994
BS/M.S., Chemical Engineering, Swiss Federal Institute of Technology, Lausanne, 1990

University of California, Riverside, Service
Assistant Professor II, 7/1/1994
Assistant Professor III, 7/1/1996
Assistant Professor IV, 7/1/1998
Assistant Professor V, 7/1/2000
Associate Professor, I, 7/1/2001
Associate Professor, II, 7/1/2002
Professor I, 7/1/2004

Other Professional Experience
Taught two one-week short courses at Universitat Autònoma de Barcelona Spain (2004) and at Wageningen University, The Netherlands (2005).

Consulting and Patents
Armatec (New Zealand)
Biorem
Brown & Caldwell
CalEnergy
Camp Dresser & McKee (CDM)
Ceilcote
Energy Resource Institute, Inc.
Indoor Air Technology/Brickley
Environmental, Inc.
Inland Empire Utilities Agency
Kemet Electronics Corporation
Paramount Petroleum
Riverside County (technical expert in lawsuit)
US Filter/R.J. Environmental
2 Patents (from consulting work), 8 Disclosures of Invention to UC Office of Technology Transfer

Registrations
None

Selected Publications
Chitwood, D.E., and M.A. Deshusses. 2001. Development of a methyl bromide collection system for fumigated farmland. Environ. Sci. Technol. 35: 636-642.

Fortin, N.Y., M. Morales, Y. Nakagawa, D.D. Focht, and M.A. Deshusses. 2001. Methyl tert-butyl ether (MTBE) degradation by a microbial consortium. Environ. Microbiol. 3: 407-416.

Gabriel, D., and M.A. Deshusses. 2003. Retrofitting existing chemical scrubbers to biotrickling filters for H_2S emission control. Proc. Natl. Acad. Sci. U.S.A. 100(11): 6308-6312.

Kang, S., A. Subramani, E.M.V. Hoek, M.A. Deshusses, and M.R. Matsumoto. 2004. Direct observation of biofouling in crossflow microfiltration: mechanisms of deposition and release. J. Membrane Science, 244: 151-165.

Kan E. and M.A. Deshusses. 2005. Continuous operation of foamed emulsion bioreactors treating toluene vapors. Biotechnol. Bioeng., 92: 364-371.

Yu, X., C. Amrhein, M.A. Deshusses, and M.R. Matsumoto. 2006. Perchlorate reduction by autotrophic bacteria supported on zero-valent iron. Environ. Sci. Technol. 40: 1328-1334.

Zhang, T., M.B. Nix, B.Y. Yoo, M.A. Deshusses, and N.V. Myung. Electrochemically functionalized single-walled carbon nanotube gas sensor. Electroanalysis (in press).

Professional Societies

American Institute of Chemical Engineers, American Chemical Society, Air and Waste Management Association, Water Environment Federation.

Selected Honors and Awards

1997/98 Bourns College of Engineering Outstanding Teaching Award

2001 Chancellor's Award to the Faculty Mentor for Excellence in Undergraduate Research

2002 Research Achievement Award from the Los Angeles Basin Section of the California Water Environment Association

2002 Research Achievement Award, Third Place overall California Water Environment Association.

2003 Erskine Visiting Faculty Fellowship, University of Canterbury, Christchurch, New Zealand

2003 Featured in Science research highlights, Science magazine, May 7, 2003

2003 Quality & Productivity Award of the City of Los Angeles for Environmental Marvels (Project Title: Biological Odor and Toxic Air Treatment)

2005 Keynote Speaker, Euro Summer School "Closing water and resources cycles via gas treatment" June 26- July 1, 2005 Wageningen University, The Netherlands

Selected Service and Professional Activities

Editorial Board, *Journal of Industrial Microbiology & Biotechnology* [99-02; 03-present]; Editorial Board, *Applied Biochemistry and Biotechnology* [03-present], Editorial Advisory Board, *Environmental Progress.* Reviewer, *Environmental Science and Technology, Biotechnology and Bioengineering, Chemical Engineering Science, Journal of Environmental Engineering, Environmental Catalysis, Journal of the Air & Waste Management Association, etc. USDA, NSF, SERDP, EPA, NAS, etc.*. External Advisory Committee, *NASA Purdue Advanced Life Support Center (by invitation) [03-06]*.

Chair, Department of Chemical and Environmental Engineering [04 – present]

Chair, Chemical and Environmental Engineering Undergraduate Education Committee and Faculty Undergraduate Advisor for Chemical and Environmental Engineering [99 - 03]. Leader for ABET accreditation efforts for both Chemical Engineering and Environmental Engineering Programs [00 - 02].

Faculty Graduate Advisor for Chemical and Environmental Engineering [03 - 04]

Supervised >60 undergraduate research assistants, >17 graduate students, 11 postdoctoral researchers

Professional Development

Attended a teaching improvement session and a department chairs session at various AIChE Annual meetings, worked with UCR Center for Teaching Excellence on my teaching technique, Member, Board of Advisors, UCR Center for Teaching Excellence [01-03].

Robert C Haddon
Distinguished Professor; Director, Center for Nanoscale Science and Engineering

Degrees

Ph.D., Chemistry, Pennsylvania State University, 1971
B.Sc(Hons), Chemistry, Melbourne University, 1966

University of California, Riverside, Service

Distinguished Professor, Departments of Chemistry and Chemical & Environmental Engineering, 7/1/2000
Director, Center for Nanoscale Science and Engineering, 7/1/2000

Other Professional Experience

1998-2006. Carbon Solutions, Inc. Founder and President.

1998-2000. Director, NSF MRSEC Advanced Carbon Materials Center.

1998. CarboLex, Inc. Co-founder and Vice President.

1997-2000. University of Kentucky, Professor of Chemistry and Physics.

1976-97. Bell Telephone Laboratories (AT&T, Lucent Technologies), Distinguished Member of Technical Staff.

1973-76. Australian National University, Queen Elizabeth II Fellow.

Consulting and Patents (last 5 years)

2004. Intel Corporation, Consultant
2006- Nanomix Corporation, Scientific Advisory Board

1. R. C. Haddon and J. Chen: "Method of Solubilizing Single-Walled Carbon Nanotubes in Organic Solutions," *U.S. Patent No*. 6,187,823 (2001).

2. R. C. Haddon and J. Chen: "Method of Solubilizing Shortened Single-Walled Carbon Nanotubes in Organic Solutions," *U.S. Patent No*. 6,331,262 (2001).

3. R. C. Haddon, J. Chen and M. A. Hamon: "Method of Solubilizing Unshortened Carbon Nanotubes in Organic Solutions," *U.S. Patent No*. 6,368,569 (2002).

4. R. C. Haddon: "Electron Transport Material and Light Emitting Diode that Contains the Electron Transport Material," U. S. Patent No. 6,428,912 (2002).

5. R. C. Haddon and M. A. Hamon: "Method of Solubilizing Unshortened Carbon Nanotubes in Organic Solutions," *U.S. Patent No*. 6,531,513 (2003).

6. R. C. Haddon and J. Chen: "Method of Solubilizing Single-Walled Carbon Nanotubes in Organic Solutions," *U.S. Patent No*. 6,641,793 (2003).

7. M. P. Mattson, R. C. Haddon and A. M. Rao: "Molecular Functionalization of Carbon Nanotubes and Use as Substrates for Neuronal Growth," *U.S. Patent No*. 6,670,179 (2003).

Publications

Mandal, S. K.; Samanta, S.; Itkis, M. E.; Jensen, D. W.; Reed, R. W.; Oakley, R. T.; Tham, F. S.; Donnadieu, B.; Haddon, R. C., Resonating Valence Bond Ground State in Oxygen-Functionalized Phenalenyl-Based Neutral Radical Conductors. *J. Am. Chem. Soc.* **2006,** 128, 1982-1994.

Itkis, M. E.; Borondics, F.; Yu, A.; Haddon, R. C., Bolometric Infrared Photoresponse of Suspended Single-Walled Carbon Nanotube Films. *Science* **2006,** 312, 413-416.

Professional Societies

Service on the Editorial Advisory Boards of Advanced Materials, J. Amer. Chem. Soc., Chemical Physics Letters, Molecular Crystals and Liquid Crystals and Organizer of the Advanced Materials and Nanotechnology Subdivision of I&EC.

Founder and Chair of the Advanced Materials and Nanotechnology Subdivision of I&EC.

Honors and awards

Fellow, Royal Australian Chemical Institute, 1988
1991 Person of the Year, Superconductor Week
Distinguished Member of Technical Staff, AT&T Bell Laboratories, 1992
Research Scholar Lectureship, Drew University, 1992
Leermakers Lectureship, Wesleyan University, 1992
Fellow, American Association Advancement of Science (AAAS), 1993
Fellow, American Physical Society, 1996
Xerox Lecturer in Industrial/Applied Chemistry, University of British Columbia, Canada, 1999
Top Ten DOE Basic Energy Sciences Discoveries in 2002 (4th Nationwide)
ISI Highly Cited Researcher in Physics
Top 100 Scientific Stories of 2005, Discover Magazine (8^{th} Worldwide).

Service

2001-2005. Materials Science Division Review Committee, Los Alamos National Laboratory
2002-2006. ICAM Scientific Advisory Committee
2003- Scientific Advisory Committee Meeting: Center for Integrated Nanotechnologies, Sandia and Los Alamos National Laboratories, Albuquerque, NM
2006. Committee of Visitors, DOE Basic Energy Sciences, MD

Kenneth Kauffman
Assistant Professor

Degrees

Ph.D., Chemical Engineering, University of Delaware, Newark, DE, 2003
M.Sc., Chemical Engineering, Purdue University, West Lafayette, IN, 1998
B.S.(Hons), Science Education, University of Iowa, 1997
B.S.E. (Hons), Chemical Engineering, University of Iowa, 1997

University of California, Riverside, Service

Assistant Professor, II, 7/1/2003

Other Professional Experience

1999-2003. University of Delaware. Graduate Student Fellow.

1997-98. Purdue University. Graduate Student Fellow.

1993-96. University of Iowa. Undergraduate Research Assistant, Chemical Engineering (1994-96). Undergraduate Laboratory Assistant, Anatomy (1993-94).

Registrations

EIT, Iowa

Publications

Kauffman, K.J., Ogunnaike, B.A., and Edwards, J.S. (2006) Designing experiments that aid in the identification of regulatory networks. *Briefings in Functional Genomics and Proteomics*. 4(4):331-342.

Kauffman, K.J., Ogunnaike, B.A., and Edwards, J.S. (2004) Modeling Genetic Networks: Design of High Throughput Experiments. Peer Reviewed Short Course at *2004 Pacific Symposium on Biocomputing*.

Edwards, J.S. and Kauffman, K.J. (2003) Biochemical engineering in the 21st century. *Curr Op Biotechnol.* 14(5)451-453.

Kauffman, K.J., Prakash, P., and Edwards J.S. (2003) Advances in flux balance analysis. *Curr Op Biotechnol.* 14(5)491-496.

Kauffman, K.J., Pajerowski, J.D., Jamashidi, N., Palsson, B.O., and Edwards, J.S. (2002) Description and analysis of metabolic connectivity and dynamics in the human red blood cell. *Biophys J*, 83(2): 646-662.

Altenbaugh, R.E., Kauffman, K.J., and Edwards, J.S. (2003) Suitability and utility of computational analysis tools: characterization of erythrocyte parameter variation. In *2003 Pacific Symposium on Biocomputing*.104-115.

Kauffman, K.J., Pridgen, E.M., Doyle, F.J. III, Dhurjati, P.S., and Robinson, A.S. (2002) Decreased protein expression and intermittent recoveries in BiP levels result from cellular stress during heterologous protein expression in *S. cerevisiae*. *Biotechnol Prog,* 18(5):942-950.

Kauffman, K.J.; Dhurjati, P.S.; Robinson, A.S.; and Doyle, F.J. III (2001) Modeling information flow in biological processes: application to the unfolded protein response. In *Proceedings of the 8th International Computer Applications in Biotechnology Conference*. Quebec City, Canada: Elsevier. 137-142.

Clough, M.P., and Kauffman, K.J. (1999) Improving engineering education: a research-based framework for teaching. *J Engr Ed,* 88(4): 527-534.

Kauffman, K.J., and Rethwisch, D.G. (1997) Introducing engineering design in materials science. *J Materials Ed*, 19(4-6): 29-38.

Kauffman, K.J. (1997) How to make questioning work for you: effective questioning in the chemical engineering classroom. *Chem Engr Ed*, 31(2):134-137.

Professional Societies

- American Chemical Society (1994-present).
- American Institute of Chemical Engineers (1994-present).
- American Society for Engineering Education (1995-present).
- Omega Chi Epsilon, Chemical Engineering Honors Society (1995-present).
- Tau Beta Pi, Engineering Honors Society (1995-present).
- National Science Teachers' Association (1996-1998).

Honors and awards

U.S. Department of Education/Purdue University of Chemical Engineering GAANN Fellowship (1997 - 1998)
Apprentice Faculty Grant, American Society of Engineering Education (1998)
National Science Foundation Graduate Research Fellow (1998 - 2001)
National Aeronautics and Space Administration Graduate Student Researchers Program Fellow (2001 - 2003)
Regents' Faculty Fellowship/Faculty Development Award, 9/2005

Service

Workshop Participant. National Institutes of Health, Emerging Technologies Workgroup, National Institute on Drug Abuse. "Model Systems for Neuroproteomics". Washington, DC, March 3-4, 2003.

Graduate Student Organizer. Mid-Atlantic Bio-Engineering Consortium (MABEC) Conference. Newark, DE, April 7, 2000.

Mark Matsumoto
Professor and Associate Dean

Degrees
Ph.D., Environmental Engineering, UC Davis, 1982
M.S., Environmental Engineering, UC Davis, 1980
B.S., Civil Engineering, UC Irvine, 1977

University of California, Riverside, Service
Professor, IV, 7/1/2003
Professor, III 7/1/2000
Professor, II (OS), 7/1/1997
Professor I (OS), 7/1/1994
Interim Dean, 7/2004-9/2005 and 1/2002-6/2002
Associate Dean, 7/1/1999-present
Chair, Chemical & Environmental Engineering, 8/1/1994-6/30/2000

Other Professional Experience
1983-1994. State University of New York Buffalo, Department of Civil Engineering. Assistant Professor (1983-89), Associate Professor (1989-94).

1978-82. University of California, Davis, Department of Civil Engineering. Research Assistant (1978-79), Postgraduate Research Engineer (1979-81), Assoc. Development Engineer (1981-82).

Consulting and Patents
Consultant: Orange County Sanitation District; Camp, Dresser, and McKee; Energy Resource Institute; U.S. Filter

Registrations
EIT (California, No. 34513)

Publications
Kang, S.-T., A. Subramani, E.M.V. Hoek, M.A. Deshusses and M.R. Matsumoto (2004). Direct observation of biofouling in cross-flow microfiltration: mechanisms of deposition and release. *Journal of Membrane Science*. 244(1-2):151-165.

Prabhukumar, G., M. Matsumoto, W. Chen, and A. Mulchandani (2004) Cadmium removal from contaminated soil by tunable biopolymers. *Environmental Science and Technology*. 38(11):3148-3152.

Tam, K., C.-H. Yang, M.R. Matsumoto, D.E. Crowley, and J.D. Sheppard (2005) Comparison of PCR-DGGE and Selective Plating Methods for Monitoring the Dynamics of a Mixed Culture Population in Synthetic Brewery Wastewater, *Biotechnology Progress.* 21(3):712–719.

Tam, K., M.R. Matsumoto, and J.D. Sheppard (2005), A Kinetic Model for Suspended and Attached Growth of a Defined Mixed Culture, *Biotechnology Progress.* 21(3):720–727.

Kostal, J., G. Prabhukumar, U.L. Lao, A. Chen, M. Matsumoto, A. Mulchandani, W. Chen (2005), Customizable Biopolymers for Heavy Metal Remediation, *Journal of Nanoparticle Research*, 7(4-5):517-523.

Mason, L.B., C. Amrhein, C.C. Goodson, M.R. Matsumoto, and M.A. Anderson (2005), Reducing Sediment and Phosphorus in Tributary Waters with Alum and Polyacrylamide, *Journal of Environmental Quality*, 34(6):1998-2004.

Yu, X., C. Amrhein, M.A. Deshusses, and M.R. Matsumoto (2006) Perchlorate Reduction by Autotrophic Bacteria in the Presence of Zero-Valent Iron, *Environmental Science and Technology*, 40(4):1328-1334.

Yu, X., C. Amrhein, Y. Zhang and M.R. Matsumoto (2006), Factors Influencing Arsenite Removal by Zero-Valent Iron, *Journal of Environmental Engineering* (ACCEPTED)

Professional Societies

American Association for the Advancement of Science (AAAS), American Society for Engineering Education (ASEE), Association of Environmental Engineering & Science Professors (AEESP), Water Environment Federation (WEF)

Honors and awards

Lilly Foundation Teaching Fellow, 1987 – 1988
Outstanding Teaching Award, Bourns College of Engineering, 2000
Fellow, AAAS, 2001

Service

Reviewer (manuscript/proposal): *Environmental Science & Technology, Journal of Environmental Engineering, Journal of Environmental Quality, Journal of Hazardous Materials, Journal of Soil and Sediment Contamination, National Institute of Environmental Health Science, National Science Foundation, U.S. EPA Small Business Innovative Research Program*, *Water Environment Research, Water Research.*

Professional Development

A variety of professional/technical conferences including:

American Chemical Society
American Institute of Chemical Engineers
Containment and Barrier Technology Workshop for Reliability and Design Prediction
International Conference on Environmental Science and Technology
International Conference on Soils, Sediments, and Water
North American Membrane Society

Ashok Mulchandani
Professor

Degrees

Ph.D., Chemical Engineering, McGill University, Montreal, Canada, 1985
M. Tech., Chemical Engineering, Indian Institute of Technology, India, 1978
B. Tech., Chemical Engineering, Laxminarayan Institute of Technology, India, 1976

University of California, Riverside, Service

Assistant Professor, III, 7/1/1991
Assistant Professor, IV, 7/1/1993
Associate Professor, I, 7/1/1995
Associate Professor, II, 7/1/1997
Professor, I, 7/1/1999
Professor, II, 7/1/2001
Professor, III, 7/1/2002
Professor, IV, 7/1/2004

Other Professional Experience

Sept. 1999-June 2000. Oak Ridge National Laboratory. Visiting Researcher.

July 1993- Sept. 1993. NIST, Gaithersburg, MD. Guest Researcher, Biotechnology Division.

July 1990-Aug. 1991. University of Western Ontario, London, Ont., Canada. Assistant Professor, Chemical & Biochemical Engineering Dept..

Nov. 1987-July 1990. Biotechnology Research Institute, National Research Council, Montreal. Research Associate.

June 1980-Sept. 1985. McGill University, Montreal. Research Assistant, Chemical Engineering Dept. Teaching Assistant (1980-82).

Sept. 1978-May 1980. Vulcan-Laval Ltd., Poona, India. Project Engineer.

Consulting and Patents

Member, Technical Advisory Board, MEI Charlton, Inc; Portland
Electrodes for measurement of peroxides, US Patent No. 593817
Bioreceptor-embedded conductive polymer nanowire sensor arrays, U.S. Patent Application No.: 11/259,557
Temperature-Triggered Immobilization and Purification of Antibodies, U.S. Patent Application No.:

Publications

1. K. Ramanathan, M. Bangar, M. Yun, W. Chen, **A. Mulchandani**, and N. V. Myung, "Bioaffinity Sensing Using Biologically-Functionalized Conducting Polymer Nanowire," *J. Am. Chem. Soc.,* .**127**¸ 496-497, 2005.
2. K. Ramanathan, M. Bangar, M. Yun, W. Chen, **A. Mulchandani**, and N. V. Myung, "Individually addressable conducting-polymer nanowires array," *Nano Letters*, **4**, 1237-1239, 2004.

Professional Societies

American Institute of Chemical Engineers
American Association for the Advancement of Science
American Chemical Society

Honors and awards

Government of India Merit Scholarship for Graduate Studies at IIT, Bombay, 1976 -1978
Research and Teaching Assistantships, McGill University, Montreal, Canada, 1980-1982
Government of Quebec, Canada, Fee Bursary for Foreign Students, 1981-1982
UC Regents' Fellowship Affirmative Action Career Development Award, 1993-1994
National Science Foundation, Research Initiation Award, 1993-1996
Keynote Speaker, 48th Canadian Chemical Engineering Society
Editorial Board Molecular Biotechnology, 1997 – 2002
US DOE Faculty Research Participation Award
Listed in Marquis Who's Who in America
Listed in Marquis Who's Who in Science and Engineering
Fellow, American Association for the Advancement of Science (AAAS), 2003
Editor-in-chief, Applied Biochemistry and biotechnology, 2003 – present

Service

Editor-in-Chief, Applied Biochemistry and Biotechnology, 2003- Present.

Organized and Chaired numerous sessions for ACS National Meeting, and a workshop on Homeland Security at UCR.

Reviewer of proposals for State, National and International funding agencies.

Developed a senior/graduate level course in biosensors, an emerging area.

Developed undergraduate unit operations and biochemical engineering teaching laboratories.

Edited a two volume book on protocols and techniques in biosensors useful for researchers starting in this emerging field and two ACS symposium series volumes.

Professional Development

Professional development activities in the last five year

Nosang Myung
Assistant Professor

Degrees

Ph.D., Chemical Engineering, UCLA, 1998
M.S., Chemical Engineering, UCLA, 1997
B.S., Chemical Engineering, UCLA, 1994

University of California, Riverside, Service

Assistant Professor, III, 7/1/2003
Assistant Professor, IV, 7/1/2005

Other Professional Experience

October 2001-August 2003. Jet Propulsion Laboratory (MEMS Technology Group), Pasadena, CA. Member of Engineering Staff.

1995-2001. University of California, Los Angeles, Department of Chemical Engineering. Graduate Research Assistant (1995-98), Assistant Research Engineer (1999-2001).

Consulting and Patents

1. "Microfabricated LiGA Parts from Ultra-thick PMMA Molds"**:** U.S. provisional patent NPO-30671.
2. "Direct Electrolytic Deposition of Maganese Oxide Nanowires for High Power Battery and Capacitor Electrodes"**:** U.S. provisional patent NPO-30655
3. "Nanowires of Lithiated Metal Oxides Fabricated from Electrodeposited Co":U.S. provisional patent NPO-30535
4. "In-situ Nanowire-based Gas Sensor Array". Filed for patents NPO-30900
5. "Aqueous Electrodeposition of Rare Earth and Transition Metals": U.S. Patent #6,306,276

Registrations

California

Publications (39 peer-viewed journal paper)

14. N. V. Myung*, L. Lim, J. P. Fluerial, M. Yun, W. West, D. Choi, "Alumina Nanotemplate Fabrication on Silicon Substrate," *Nanotechnology*, 15, 833-838, 2004.
15. M. Yun, **N. V. Myung**, R. Vasquez, C. Lee, E. Menke, R. M. Penner, "Electrochemically Grown Wires for Individually Addressable Sensor Arrays," *Nanoletters*, 4, 3, 419-422, 2004.
17. K. Ramanathan, M. Bangar, M. Yun, W. Chen, A. Mulchandani*, **N. V. Myung***, "Individually Addressable Conducting Polymer Nanowires Array," *Nanoletters*, 4(7), 1237-1239, 2004.

19. M. Bangar, K. Ramanathan, M. Yun, C. Hangarter, C. L. Lee, **N. V. Myung***, "Controlled Growth of Single Palladium Nanowire between Microfabricated Electrodes," *Chem. Mater*, 16, 4955-4959, 2004.
20. S. Niyogi, C. Hangarter, R. Chiang, R. Kawakami, **N. V. Myung***, R. C. Haddon*, "Magnetically Assembled Multiwalled Carbon Nanotubes on Ferromagnetic Contacts," *Journal of Physical Chemistry B*,108, 19818-19824 2004.
22. S. Kelcher, D.-Y. Park, **N. V. Myung*** "Residual Stress and Magnetic Properties of Nickel, Cobalt, Iron and FeCo Electrodeposits," *Plating and Surface Finishing*, 92(1), 24-29, 2004.
24. K. Ramanathan, M. A. Bangar, M. Yun, W. Chen, **N. V. Myung*** and A. Mulchandani, "Bioaffinity Sensing Using Biologically-Functionalized Conducting Polymer Nanowire," *Journal of American Chemical Society (JACS)*, *127*(2), 496-497, 2005.
26. C. H. Hargarter and **N. V. Myung*** "Magnetic Alignment of Nanowires", *Chem. Maters*, 17, 1320-1324, (2005)
28. J. R. Lim, J. F. Whitacre, J.-P. Fluerial, C.-K. Huang, M. A. Ryan, **N. V. Myung***, "Fabrication of Thermoelectric Nanodevices", *Advanced Materials*, **17**, 1488-1492, (2005).
31. Invited Paper A. Wanakeya, W. Chen, **N. V. Myung***, A. Mulchandani*, "Nanowire-Based Electrochemical Biosensors," *Electroanalysis*, 18, 6, 533-550, 2006.

Professional Societies
American Institute of Chemical Engineers,The Electrochemical Society, International Society of Electrochemistry, American Chemical Society

Honors and awards

Korean American Edward Lee Scholarship, Hughes Aircraft Company Scholarship
Electrochemical Society Student Grant, American Electroplating and Surface Finishing Summer Scholarship, Department of Education Fellowship, National Science Foundation Fellowship
Abner Brenner Gold Medal Award from American Electroplaters and Surface Finishers Society (AESF), Jet Propulsion Laboratory Spot Award, Regents' Faculty Fellowship Award, June 2004
NASA Tech Brief Award

Service

Discussion Leader for Gordon Conference "Magnetic Materials and Phenomena", Electrodeposition held in New London, NH (Aug. 2002).
Lead Symposium Organizer "1st International Symposium on Electrodeposition of Nanoengineered Materials" (Sept. 2005, Los Angeles, CA)
Lead Symposium Organizer "2nd International Symposium on Electrodeposition of Nanoengineered Materials and Devices" (Oct. 2007, Washington, DC)

Professional Development

NASA/JPL Grant Writing Workshop, annually attending American Institute of Chemical Engineer meeting, annually attending American Chemical Society meeting, annually attending the Electrochemical Society Meeting, bi-annually attending Gordon Conference.

Joseph Norbeck
Professor; Director, Environmental Research Institute

Degrees

Ph.D., Theoretical Chemistry, University of Nebraska, 1974
B.S., Chemistry, University of Nebraska, 1970

University of California, Riverside, Service

Professor, IV, 1/1/1992
Professor, V, 7/1/1996
Professor, VII, 7/1/2002

Director, College of Engineering-Center for Environmental Research and Technology, 1992-2004.

Director, UCR Environmental Research Institute, 2004-present.

Other Professional Experience

1977-92. Ford Motor Company. Manager, Chemistry Department (1988-92), Senior Research Scientist (1977-80), Principal Research Scientist Associate (1980-84).

Selected Publications

Hackett, C.E., with Park, C.S., and McClanahan, M. (2003) High Temperature and Pressure Carbon Monoxide to Hydrogen Ratio Sensor. UC Invention Disclosure.

Hackett, C.E., with Norbeck, J.M., Park, C.S., and McClanahan, M. (2004) Gas Sensor Based on Dynamic Thermal Conductivity and Molecular Velocity. UC Invention Disclosure.

Betty*, M., T. Dam*, S. McClure*, J.M. Norbeck, and K.C. Johnson. (1999). Development of a Highly Efficient, Low-Emission Dedicated Ethanol-Fueled Vehicle. *Society of Automotive Engineers.* Ethanol Vehicle Challenge, May.

Jones*, M.; Wilson, R.; Norbeck, J.M.; Han, W.; Hurley, R.; and Schuetzle, D. (2001) A Systems Evaluation on the Effectiveness of a Catalyst Retrofit Program in China. *Environmental Science & Technology,* 35(17): 3416-3421.

Durbin, T.D.; Wilson, R.D.; Norbeck, J.M.; Miller, J.W.; Huai, T.; and Rhee, S.* (2002) Estimates of the Emission Rates of Ammonia from Light-Duty Vehicles using Standard Chassis Dynamometer Cycles. *Atmospheric Environment* 36:1475-1482

Professional Societies

American Chemical Society
Air and Waste Management Association
Society of Automotive Engineers

American Association for the Advancement of Science, Fellow, 1999
Sigma Xi

Honors and awards

NSF Graduate Fellowship, 1970 – 1971
Science Research Council (England), Postdoctoral Fellowship, 1973 – 1974
NATO Fellowship for Advanced Study Institute, 1974
Gubernatorial appointment as an Air Quality Expert on the California Inspection Maintenance Review Committee, 1994 – present
Clean Air Award, South Coast Air Quality Management District, LA, 1995
Valley Group Award for Excellence in Environmental Research, 1997
Riverside Regional Leader of the Year Award, 1998
Fellow of the American Association for the Advancement of Science, 1999
Mellon Foundation Fellowship, 2000 - 2003
Fellow, American Association Advancement of Science (AAAS), 1999

Service

South Coast Air Quality Management District Renewable Energy/Fuel Cell Implementation Task Force, 1995-present.

Board of Directors member of the Science and Technology Education Partnership, a non-profit venture to encourage schoolchildren in Riverside and San Bernardino counties to pursue studies in science, mathematics, and engineering.

Member, Executive Research Advisory Committee, Society of Automotive Engineers, 1989-present.

Chairman, Air Pollution Research Advisory Committee of the Coordinating Research Council, 1989-92.

UCR Chancellor's Award to the Faculty Mentor for Excellence in Fostering Undergraduate Research, 2002-03.

Board of Directors Energy Resource Institute (1996-present)

Technical Advisory Board, Bourns, Inc. (2001-present)

Mobile Sources Technical Review Subcommittee (MSTRS) of the Clean Air Advisory Committee (1995-present)

USEPA Board of Directors, San Diego Environmental Foundation, San Diego, CA (1997-present)

Program and Peer Reviewer – Small Business Innovative Research Program, USEPA (1997-present)

Editorial Board of the Journal of Scientific Industrial Research (JSIR) (2001-present)

Editorial Board of the International Journal of Automotive Technology (2000-present)

Organizing Board, Jim Guthrie Undergraduate Research Symposium, 2003-present.

Jerome Schultz
Distinguished Professor

Degrees

Ph.D., Biochemistry, University of Wisconsin, 1958
M.S., Chemical Engineering, Columbia University, 1956
B.S., Chemical Engineering, Columbia University, 1954

University of California, Riverside, Service

Distinguished Professor, 7/1/2003

Other Professional Experience

2001-2002. NASA-Ames Research Center, Division of Fundamental Biology. On leave from University of Pittsburgh, assisted in the development of a strategic plan to integrate biotechnology, nanotechnology, and information technology.

1987-2003. University of Pittsburgh. Chairman, Department of Bioengineering (1998-2002). Professor of Bioengineering. Professor of Chemical Engineering. Professor of Medicine.

1985-87. National Science Foundation. Deputy Director, Division of Cross-Disciplinary Research. Section Head, Emerging Engineering Systems.

1984. University of Maryland and National Institute for Standards and Technology (NIST). Director of Development, Center for Advanced Research in Biotechnology.

1964-87. University of Michigan. Chairman, Department of Chemical Engineering. Professor of Chemical Engineering.

1983. University of North Carolina, Chapel Hill. Visiting professor on sabbatical from Michigan.

1971-72. University of Nijimegen, Holland. Guest Professor of Physiology.

1958-64. Lederle Laboratories. Group Leader, Biochemical Research. Research and Development Engineer.

Consultantships

Abbott	C W Group	Catalytica
Affymax	ISTAT	Cordis
Baxter Travenol	IVAC	Shell Development
Bend Research	Lederle Laboratories	Cardiovascular Dynamics
Boston Group	Natl Inst Science Tech	N. Y. State Technical Foundation
BOC	Natl Institutes Health	Physical Optics Corporation
Cardiac Pacemakers	Natl Science Foundation	Texas Education Board
Juvenile Diabetes Found.	Biocontrol Technology	National Academy of Sciences
NASA	Motorola	WTEC

Patents

G. Krupka, J. S. Schultz, D. T. Winski, Recovery of Streptokinase from Fermentation Mashes. US Patent #3,145,153. 4 Claims, Aug. 18, 1964.
J. S. Schultz. Optical sensor of plasma constituents. U.S. Patent #4,344,438. Aug. l7, l982.
C. Komives, and J.S. Schultz, Optical Fiber Sensors for Continuous Monitoring of Biochemicals and Related Method. Patent # 5,143,066, Sept. 1, 1992.
J.S. Schultz and R. Ballerstadt. Homogeneous Affinity Assay for Quantitative Drug and Metabolite Determination. #5,814,449, Sept. 29, 1998
R. Ballerstadt and J.S. Schultz. Method and Kit for Detecting an Analyte. #6,271,044, Aug. 7, 2001

Selected Publications (2006)

K. Nagamine, Shimomura, K., Imai, K., Schultz, J., Mills, A. (2005) Probing magnetism in human blood by Muon spin relaxation spectroscopy. Proceedings of MSR, 27-30.
D. Gao, N. McBean, J. S. Schultz, Y. Yan, A. Mulchandani, W. Chen. Fabrication of Antibody Arrays Using Thermally Responsive Elastin Fusion Proteins J. Am. Chem. Soc., 128 (3), 676 -677, 2006
J.S. Schultz. Inside the Cell – A New Paradigm for Unit Operations and Unit Processes? Chemical Engineering Education. Pp 126-139, Spring 2006.
J.S. Schultz. Optically-based Affinity Biosensors for Glucose. In Topics in Fluorescence Spectroscopy, Volume 11, Glucose Sensing. Editors C.D. Geddes and J.R. Lakowicz. Pp 283-310 (2006).
K. Nagamine, S. Shimomura, K. Imai, J.S. Schultz. Probing magnetism in human blood by muon spin relaxation. Physica B, 374-375: 444-447 (2006)

Professional Societies
American Institute of Chemical Engineers; Biomedical Engineering Society; American Chemical Society; American Institute for Artificial Organs; American Institute for Medical and Biological Engineering; IEEE

Honors and awards (last 10 years)

Fellow, Biomedical Engineering Society (BMES), 2005; Donald Katz Lectureship, University of Michigan, School of Engineering, 2002; Marvin J. Johnson Biotechnology Award, American Chemical Society, BIOT Division, 2000; University of Pittsburgh Distinguished Service Professor of Engineering, 1999; American Association for the Advancement of Science, Fellow, 1997; Whitaker Plenary Lecturer, American Society for Artificial Internal Organs, 1997; Career Achievement Award, Houston Society for Artificial Internal Organs, 1997.

Service
Editor in Chief, Biotechnology Progress – 1991-Present.
NIH Study Sections, 1984-1988, 2004.
President, American Institute for Medical and Biological Engineering – 1995.
Member National Academy of Engineering – 1994.

Sharon Walker
Assistant Professor and
the John Babbage Chair in Environmental Engineering

Degrees
Ph.D., Environmental Engineering, Yale University, 2004
M.S., Engineering and Applied Science (Chemical Eng.), Yale University, 2000
B.S., Environmental Engineering, University of Southern California, Los Angeles, CA, 1998
B.S., Environmental Studies, Biology Emphasis, University of Southern California, Los Angeles, CA, 1998

University of California, Riverside, Service
Assistant Professor, 7/1/2004

Other Professional Experience
1999-2004. Yale University. Graduate Student Fellow.
1999. University of Southern California. Research Project Assistant, Wrigley Institute for Environmental Studies.
1994-97. University of Southern California. Undergraduate Research Assistant, Environmental Engineering.

Consulting and Patents
None

Registrations
None

Publications
Bradford. S.A., Simunek, J., and Walker, S.L "Transport of *E. coli* O157:H7 in Saturated Porous Media" submitted to *Water Resources Research*, Special Section: Colloid Transport in Subsurface Environments (Dec. 2005)
Bolster, C.H., Walker, S.L., and Cook, K.L. "Comparison of *Escherichia coli* and *Campylobacter jejuni* Transport in Porous Media" *Journal of Environmental Quality* (accepted)
Walker, S.L. 2005 "The Role of Nutrient Presence on the Adhesion Kinetics of *Burkholderia cepacia* G4g and ENV435g" *Colloids and Surfaces B: Biointerfaces* 45: 181-188.
Walker, S.L 2005 "The Influence of Bacterial Surface Polymers on Bacterial Adhesion and Transport in Groundwater Environments" *Journal of Harbin Institute of Technology* (new series), 12: 19-26.
Walker, S.L., Redman, J.A., and Elimelech, M. 2005 "Influence of Growth Phase on Bacterial Adhesion and Transport: Interaction Mechanisms Involved in Packed-Bed Column and Radial Stagnation Point Flow Systems" *Environmental Science and Technology*, special issue "Particles and Interfaces in Aquatic Systems, A tribute to Prof. Charles R. O'Melia" 39: 6405-6411.
Walker, S.L., Hill, J., Redman, J.A. and Elimelech, M., 2005 "The Influence of Growth Phase on Adhesion Kinetics of *Escherichia coli* D21g" *Applied and Environmental Microbiology*, 71:3093-3099.

Walker, S. L., J. A. Redman, and M. Elimelech. 2004. "Role of Cell Surface Lipopolysaccharides in Escherichia coli K12 Adhesion and Transport." *Langmuir* 20:7736-7746.
Redman, J.A., Walker, S.L. and Elimelech, M. "Bacterial Adhesion and Transport in Porous Media: Role of the Secondary Minimum", *Environmental Science and Technology*, 2004, 38, 1777-1785
Walker, S.L.; Bhattacharjee, S.; Hoek, E.M.V.; Elimelech, M. (2002) "A Novel Asymmetric Clamping Cell for Measuring Streaming Potential of Flat Surfaces", *Langmuir*, 18: 2193-2198

Professional Societies
Active Member: American Chemical Society, American Society of Microbiology, Association of Environmental Engineering and Science Professors. Society of Women Engineers, Association of Women in Science, American Society of Civil Engineers
UC Riverside Chapter Advisor: Society of Women Engineers, Tau Beta Pi Alpha Beta Chapter
Honor Society Member: Chi Epsilon, Civil Engineering Honors Society, Tau Beta Pi

Honors and Awards
National Water Research Institute Graduate Fellowship (2000-2003)
U.S. Environmental Protection Agency STAR Fellowship (2001-2004)
American Chemical Society Graduate Student Award in Environmental Chemistry (2002)
American Chemical Society Certificate of Merit, Environmental Chemistry Division (2003)
Appointed John Babbage Chair (1/1/05 - 6/30/2008)
Regents' Faculty Fellowship/Faculty Development Award (9/2005)

Service
Co-organizer of "Understanding and Controlling Biofouling in Aquatic Systems" Symposium, Division of Environmental Chemistry and Association of Environmental Engineering and Science Professors (AEESP) Joint-Session, 232nd American Chemical Society National Meeting, September 10-14, 2006, San Francisco, CA
Co-organizer of "Colloidal & Interfacial Phenomena in Aquatic Systems" Symposium, Topical 1: Water Resource Conservation: Purification, Reclamation and Reuse (T1), AIChE National Meeting, November 2006, San Francisco, CA
Co-organizer of "Water Quality Sensing and Detection Methods" Symposium, Topical 1: Water Resource Conservation: Purification, Reclamation and Reuse (T1), AIChE National Meeting, November 2006, San Francisco, CA
Co-organizer of "Colloid Separation and Transport in Aquatic Environments" Symposium, Division of Colloid and Surface Chemistry, 229th American Chemical Society National Meeting, March 13-14, 2005, San Diego, CA.
Reviewer, *Environmental Science & Technology, Journal of Colloid and Interface Science*, *Biotechnology and Bioengineering, Journal of Medical Microbiology, Industrial & Engineering Chem. Research,* and *Water Research*
NSF Panel Member: ADVANCE Leadership (10/2005) Graduate Research Fellowship (2/2005)
Advisory Council to the Associate Vice Provost for Faculty Equity and Diversity, UC Riverside

Professional Development
USDA-CSREES Grantsmanship Workshop, Moscow, Idaho September 2005
QEM-NSF CAREER Award Grant Writing Workshop, Las Vegas, Nevada, March 2005

Jianzhong Wu
Associate Professor

Degrees
Ph.D., Chemical Engineering, UC Berkeley, 1998
M.S., Chemical Engineering, Tsinghua University, Beijing, China, 1994
B.S., Applied Mathematics, Tsinghua University, Beijing, China, 1991
B.E., Chemical Engineering, Tsinghua University, Beijing, China, 1991

University of California, Riverside, Service
Assistant Professor, II, 7/1/2000
Assistant Professor, III, 7/1/2002
Assistant Professor, IV, 7/1/2003
Assistant Professor, V, 7/1/2004
Associate Professor, II, 7/1/2005

Other Professional Experience
1998-2000. Lawrence Berkeley National Laboratory. Postdoctoral Researcher.
19985-1998. Univeristy of California, Berkeley, Department of Chemical Engineering. Graduate Student researcher (1995-1998). Graduate Student Instructor (1997).

Registrations
California

Publications

"Density Functional Theory for Chemical Engineering: From Capillarity to Soft Materials," J. Wu, *AIChE Journal*, 52(3), 1169-1193 (2006).

"Density Functional Theory for Polyelectrolytes near Oppositely Charged Surfaces," *Physical Review Letters*, Z. Li and J. Wu, 96 Article# 048302 (2006).

"Surface Forces between Telechelic Brushes Revisited: The Origin of a Weak Attraction", D. Cao and J. Wu, *Langmuir*, 22, 2712-2718 (2006).

"Molecular dynamics for structural transitions of an encapsulated model protein," D. Lu, Z. Liu, J. Wu, *Biophysical Journal*, 90(9), 3224-3238 (2006).

"Molecular Thermodynamics for Charged Biomacromolecules," J. Wu and D. Morikis, *Fluid Phase Equilibria*, 241, 317-333, 2006.

"A hybrid method for predicting the micro-structure of polymers with complex architecture: Combination of single-chain simulation with density functional theory", D. Cao, T. Jiang and J. Wu, *Journal of Chemical Physics*, 124 (16), 164904 (2006).

"Density Functional Theory for Planar Electric Double Layers: Closing the Gap between Simple and Polyelectrolytes," Z. Li and J. Wu, *Journal of Physical Chemistry B*, 110, 7473-7484, (2006).

"Theoretical Study of Cooperativity in Multivalent Polymers for Colloidal Stabilization" (D. Cao and J. Wu), *Langmuir*, **21** (21), 9786 -9791 (2005).

"Layering, condensation, and evaporation of short chains in narrow slit pores", Z. Li, D. Cao and J. Wu, *Journal of Chemical Physics,* **122***,* 224701 (2005)

"Density functional theory and Monte Carlo simulations for the surface structure and correlation functions of freely jointed Lennard-Jones chains", Z. Li, D. Cao and J. Wu, *Journal of Chemical Physics,* **122***,* 174708 (2005)

"Surface-Induced Lamellar-Lamellar Phase Transition of Block Copolymer Thin Films" (D. Cao and J. Wu), *Journal of Chemical Physics*, **122**, 194703 (2005).

"Size Effect on Colloidal Forces within the Primitive Model" (S. Ravindran and J. Wu), *Condensed Matter Physics*, **8**(2), 42-52(2005).

"Activated Carbons for the Separation of Hydrogen and Carbon Dioxide" (D. Cao and J. Wu), *Carbon*, **43**(7) 1364-1370 (2005).

"Volume Transition and Internal Structures of Small Poly(*N*-isopropylacrylamide) Microgels" (L. Arleth, X. Xia, R. Hjelm, J. Wu, and Z. Hu), *Journal of Polymer Science B: Polymer Physics*, **43**, 849–860 (2005)

"Vapor-Liquid Equilibria and Interfacial Tensions of Associating Fluids within a Density Functional Theory" (D. Fu and J. Wu), *Industrial & Engineering Chemistry Research*, 44, 1120-1128 (2005). (Invited Contribution)

"Microstructure of block copolymers near selective surfaces: Theoretical predictions and configurational-bias Monte Carlo simulation" (D. Cao and J. Wu), *Macromolecules*, 38, 971-978 (2005).

"Modeling the Electrostatics and Size Effect within a Crowded Bioenvironment" (Z. Li and J. Wu), *Macromolecular Symposia*, 219, 51-57(2005).

Professional Societies

American Chemical Society (2002 -)
American Institute of Chemical Engineers (1998 -)
International Association of Chemical Thermodynamics (2004 -)

Honors and awards

Progress in Science and Technology Award (second rank), Ministry of Education, P.R. China, 1999
Outstanding Performance Award, Lawrence Berkeley National Laboratory, 2000

Service

Co-author of textbook *Thermodynamics for Molecular Engineering*, Cambridge University Press (in preparation).

Charles Wyman
Ford Motor Company Professor of Engineering

Degrees

Ph.D., Chemical Engineering, Princeton University, Princeton, NJ, 1971
M.A., Chemical Engineering, Princeton University, Princeton, NJ, 1969
MBA, Business Administration, University of Denver, Denver, CO, 1988
B.S., Chemical Engineering, University of Massachusetts, Amherst, MA, 1967

University of California, Riverside, Service

Professor, VIII, 9/2005

Other Professional Experience

1998-2005. Dartmouth College, Hanover, NH. Paul and Joan Queneau Distinguished Professor in Environmental Engineering Design (2002-present). Professor of Engineering (1998-2002).

1997-present. BC International, Dedham, MA. Director of Technology.

1984-1997. National Renewable Energy Laboratory, Golden, CO. Director of Biotechnology Center for Fuels and Chemicals (1996-97). Director, Alternative Fuels Division (1992-96). Manager, Biotechnology Research Branch (1984-92).

1981-1984. Badger Company Inc., Cambridge, MA. Manager of Process Development.

1978-1981. Solar Energy Research Institute (now NREL), Golden, CO. Deputy Division Manager, Program Coordinator, Group Manager, Senior Engineer, Staff Engineer.

1974-1978. Univ. of New Hampshire, Durham. Assistant Professor, Chemical Engineering Dept.

1971-1974. Monsanto Co. Inc., Springfield, MA. Senior Chemical Engineer.

Consulting and Patents

Consultant for Genencor International, Viresco, BC International, Si Options. Chairman of Scientific Advisory Board for Mascoma Corporation. 12 patents and patent applications on file.

Registrations

None

Selected publications for last 5 years

Wyman CE, Decker SR, Himmel ME, Brady JW, Skopec CE, Viikari L. 2004. "Hydrolysis of Cellulose and Hemicellulose," in *Polysaccharides: Structural Diversity and Functional Versatility, 2nd Edition*, Dumitriu S, Ed, Marcel Dekker, Inc., New York, pp 995-1033, invited.

Yang B, Gray MC, Liu C, Lloyd TA, Stuhler SL, Converse AO, Wyman CE. 2004. "Unconventional Relationships for Hemicellulose Hydrolysis and Subsequent Cellulose Digestion," Chapter 6 in *Lignocellulose Biodegradation*, Saha BC, Hayashi K, Eds. ACS Symposium Series 889, American Chemical Society Washington, DC, pp 100-125, invited.

Wyman CE. 2004. "Ethanol Fuel," Chapter in New Edition of *Encyclopedia of Energy*, Cutler Cleveland, Ed., Elsevier, St. Louis, MO, Volume 2, pp. 541-555, March, invited.

Wyman CE. 2003. "Applications of Corn Stover and Fiber," in *Corn Chemistry and Technology*, *2nd Edition,* White P, Johnson LA, Eds., American Association of Cereal Chemists, St. Paul, MN, pp. 723-750, invited.

Wyman CE. 2002. "R&D Needs for a Fully Sustainable Biocommodity Industry," in *Advancing Sustainability through Green Chemistry and Engineering*, Lankey RL, Anastas PT, Eds. ACS Symposium Series 823, American Chemical Society Washington, DC, pp. 31-46, invited.

Yang B, Willies DM, Wyman CE. 2006. "Changes in the Enzymatic Hydrolysis Rate of Avicel Cellulose with Conversion," *Biotechnology and Bioengineering*, accepted.

Yang B, Wyman CE. 2006. "BSA Treatment to Enhance Enzymatic Hydrolysis of Cellulose in Lignin Containing Substrates," *Biotechnology and Bioengineering*, accepted.

Wyman CE, Dale BE, Elander RT, Holtzapple M, Ladisch MR, Lee YY. 2005. "Coordinated Development of Leading Biomass Pretreatment Technologies," *Bioresource Technology* **96**(18): 1959-1966, invited.

Lloyd TA, Wyman CE. 2005. "Total Sugar Yields for Pretreatment by Hemicellulose Hydrolysis Coupled with Enzymatic Hydrolysis of the Remaining Solids," *Bioresource Technology* **96**(18): 1967-1977, invited.

Professional Societies

American Association for the Advancement of Science, American Chemical Society; American Institute of Chemical Engineers; Biomass Energy Research Association

Honors and awards

Phi Kappa Phi; Sigma Xi; Tau Beta Pi; NREL 1991Staff Leadership Award; 1992NREL Hubbard Leadership Award; 1999 C.D. Scott Award in Biotechnology; Who's Who in Science and Engineering; Who's Who in the West; Who's Who in the World; Who's Who in Emerging Leaders in America

Service - current

Board of Directors, Biomass Energy Research Association; Industrial Board of Advisers, Speed Scientific School, Univ. of Louisville; International Editorial Board, *Biomass and Bioenergy*; Editorial Board, *Biotechnology and Bioengineering*; Organizing Committee for 12 Symposia on Biotechnology for Fuels and Chemicals, Advisory Board, Kentucky Science and Engineering Foundation.

Yushan Yan
Professor

Degrees

Ph.D., Chemical Engineering, California Institute of Technology, 1997
M.S., Chemical Engineering, California Institute of Technology, 1995
B.S., Chemical Physics, U. of Science & Technology of China, Hefei, 1988

University of California, Riverside, Service

Assistant Professor, III, 7/1/1998
Assistant Professor, IV, 7/1/2000
Assistant Professor, V, 7/1/2001
Associate Professor, II, 7/1/2002
Associate Professor, III (OS), 7/1/2003
Associate Professor, IV (OS), 7/1/2004
Professor, II, 7/1/2005

Other Professional Experience

1996-1998. AlliedSignal Inc. Senior Staff Engineer/Project Leader.

1996-1996. California Institute of Technology. Research Assistant.

1988-1992. Chinese Academy of Sciences. Research Assistant.

Consulting and Patents

Pacific Fuel Cell Corp. (Board of Directors), and Vesta Sciences.
4 Issued US patents and 6 pending US Patents.

1. Y. Yan, X. Cheng, Z. Wang **2003**. Metal surfaces coated with molecular sieves for corrosion resistance. US Patent Application No. 09/745,852, May 17, 2000, U.S. Patent No. **6,521,198**, February 18, 2003.
2. Y. Yan, Z. Wang, H. Wang **2003**. Silica zeolite low-k dielectric thin films. Application No. 09/900,386. US Patent No. **6,573,131**, June 3, 2003.
3. Y. Yan **2002**. Hydrophilic zeolite coatings. Application No. 09/535,000, March 23, 2000; US Patent No. **6,500,490**, December 31, 2002.
4. Y. Yan, Z. Wang, H. Wang **2003**. Silica zeolite low-k dielectric thin films. Application No. 09/900,386. US Patent No. **6,630,696**, October 7, 2003.

Publications (out of total 65 articles and 2 book chapters)

1. R. Munoz, D. Beving, Y. Yan **2005.** Hydrophilic Zeolite Coatings for Improved Heat Transfer, *Ind. Eng. Chem. Res.* 44, 4310-4315.
2. M. Waje, X. Wang, W. Li, Y. Yan **2005**. Deposition of Platinum Nanoparticles on Organic Functionalized Carbon Nanotubes Grown In situ on a Carbon Paper for Fuel Cells, *Nanotechnology*, 16:S395–S400.
3. W. Li, X. Wang, Z. Chen, M. Waje, Y. Yan **2005.** Carbon nanotube film by filtration as cathode catalyst support for proton exchange membrane fuel cell, *Langmuir*, 21:9386 -9389.
4. A. Mitra, T. Cao, H. Wang, Z. Wang, L. Huang, S. Li, Z. Li, Y. Yan **2004**. Synthesis and evaluation of pure-silica-zeolite BEA as low dielectric constant material for microprocessors, *Ind. Eng. Chem. Res.* 43:2946-2949.

5. L. Xu, W. Chen, A. Mulchandani, Y. Yan **2005.** Reversible Superhydrophobic to Superhydrophilic Conversion of Conducting Polymer Films, *Angewandte Chemie International Ed.,* 44:6009-6012.
6. H. Wang, B.A. Holmberg, Y. Yan **2003.** Direct synthesis of template-free zeolite nanocrystals within *in-situ* thermoreversible polymer hydrogels, *J. Am. Chem. Soc.* 125:9928-9929.
7. S. Li, Z. Li, K. N. Bozhilov, Z. Chen, Y. Yan **2004.** TEM Investigation of Formation Mechanism of Monocrystal-thick *b*-Oriented Zeolite MFI Film, *J. Am. Chem. Soc.* 126:10732-10737.
8. S. Li, X. Wang, D. Beving, Z. Chen, Y. Yan **2004.** Ion Sieving in Nanoporous *b*-Oriented Pure-Silica-Zeolite MFI Monocrystal Film Ion sieving, *J. Am. Chem. Soc.* 2004, 126, 4122-4123.
9. Y. Yan, H. Wang **2004** [**Invited Review**]. Nanostructured Zeolite Films in "Encyclopedia of Nanoscience and Nanotechnology**"**, Edited by H. S. Nalwa, American Scientific Publishers, Volume 7:763-781.
10. Y. Yan, Z. Li, S. Li, C. Lew. **2005** [**Invited Review**]. "Zeolite Membranes" in *Encyclopedia of Chemical Processing*, Edited by S. Lee, Marcel Dekker, pp3227-3246.

Professional Societies

American Institute of Chemical Engineers (AIChE); American Chemical Society (ACS); Materials Research Society (MRS); Electrochemical Society (ECS); North America Membrane Society (NAMS); International Zeolite Association (IZA).

Honors and awards

First Class Scholarship Award, University of Science & Technology, China, 1984-1985
President Scholarship Excellence Award, Chinese Academy of Sciences, 1990
Li Ming Scholarship Award, Caltech, 1994-1995
California Institute of Technology Research Fellowship, 1992 – 1996
Recognition of Contribution, Allied Signal Aerospace Equipment Systems, 1997
Guest Professor, Department of Chemistry, Jilin University, China, 1983
New, Junior Faculty Research Award, UC-SMART/Allied Signal, 1999
Regents Faculty Fellowship, 2000
Regents' Faculty Fellowship/Development Award, July 2001
University Scholar (Title awarded by UCR for the period 7/1/06 - 6/30/09)

Service

UC-SMART Executive Committee, 2000

Manuscript Review: *J. Am. Chem. Soc.; Chem. Mater.; J. Phys. Chem.; Nanoletters; Ind. Eng. Chem. Res.; Chem. Comm.; J. Mater. Chem., Phys. Chem. Chem. Phys.; J. Mater. Res.; Catal. Today; Adv. Envion. Res.; J. Membr. Sci.; J. Colloid Interface Sci.; J. Molecular Catal.; J. Electrochem. Soc.; Electrochemical & Solid State Letters, Electrochimica Acta Microporous Mesoporous Mater.; Separation Science and Technology, Adv. Mater. Advanced Functional Mater. Nature Mater.*

Proposal review: NSF, DOE, NRC, Department of State Civilian Research and Development Foundation, UC-SMART; Review panel: NSF, UC-SMART.

Professional Development

Participated the years AIChE meeting, ACS meeting, and other specialized meetings

B.C. Abi-Samra
Lecturer

Degrees

M.S., Environmental Health, University of Kansas, Lawrence, 1991
B.S., Civil Engineering, University of Missouri-Columbia, 1978

University of California, Riverside, Service

Lecturer since March 2006.

Other Professional Experience

Camp Dresser and McKee, Carlsbad, CA. Associate, 2000-present.
Black and Veatch, Los Angeles, CA. Senior Project Manager, 1989-2000.
Martell and Associates, Kansas City, KS. Project Manager, 1981-1989.
Schlup Becker and Brennan, Kansas City, KS. Staff Engineer, 1978-1981.

Consulting and Patents

Worked as a consulting engineer/ manager from 1978- to present.

Registrations

Professional Engineer, California #49973 (1993); Kansas #9400.

Publications

"The Orange County Sanitation District Goes for High-Rate Biotowers in a Big Way" (with R. Gaudes, J. Thompson and L. Voelz). Presented at the *Water Environment Federation Annual Technical Exhibition and Conference (WEFTEC)*, Washington DC, November 2005.

"The Use of Microfiltration and Reverse Osmosis to Treat Secondary Wastewater Treatment Plant Effluent and Provide High Quality Reclaimed Water", B.C. Abi-Samra, Paul Cook, Peter Lange, Jose Zepeda, Presented at the American Water Works Association *Water*, Washington DC, June 2001.

The Use of Microfiltration and Reverse Osmosis to Treat Secondary Wastewater Treatment Plant Effluent and Provide High Quality Reclaimed Water", B.C. Abi-Samra, Paul Cook, Peter Lange, Jose Zepeda, Presented at the American Membrane Technology, Tampa FL, July 2002.

"Membranes, Design Build and Recycled Water a Recipe for Success" B.C. Abi-Samra, Tanveer Rao, Paul Cook, Presented at the American Water Works Association *Water*, San Antonio TX, March 2001.

"Optimizing Primary Treatment Baffling" Presented at the *Water Environment Federation Operations/ Technical)*, Studio City California, 1998.

"Chemical Facility Design Running the Regulatory Gauntlet," with Tracy Clinton Presented at the *California Water Association Annual Technical Exhibition and Conference (CWEA))*, Sacramento CA, November 2005.

Professional Societies

Water Environment Federation (WEF), California Water Environment Association (CWEA) California Association Os Sanitation Agencies

Honors and awards

Hyperion Treatment Plant voted by American Public Works Association as one of the top 10 engineering achievements of the 20th Century. I managed a large portion of the design on the program.

West Basin Water Recycling Facility expansion Phase IV voted by Watereuse Association as the recycling project of the year 2005.

Professional Development

Attended several training sessions , in professional engineering technical training total CEU 9.0, and presented three papers at three conferences.

Sang-Mi Lee
Visiting Lecturer

Degrees

Ph.D. in Atmospheric Sciences, Seoul National University, 1999
M.S. in Atmospheric Sciences, Seoul National University, 1994
B.S. in Earth Science Education, Seoul National University, 1992

University of California, Riverside, Service

Dec 1, 2004 – present Visiting Assistant Researcher in Department of Mechanical Engineering

Other Professional Experience

Apr 2006 – Jun 2006, Lecturer, Department of Chemical and Environmental Engineering, UCR
Apr 2005 – Jun 2005, Lecturer, Department of Chemical and Environmental Engineering, UCR
Sep 1999 – Dec 1999, Lecturer, Department of Environmental Engineering, Ajou University, Korea

Publications

Luhar, A., A. Venkatram, and **S. M. Lee**, 2006: On relationships between urban and rural surface meteorology for diffusion applications, *Atmospheric Environment* (In Revision)

Lee, S. M., H. J. S. Fernando, and S. Grossman-Clarke 2006, MM5-SMOKE-CMAQ as a Modeling Tool for 8-Hour Ozone Regulatory Enforcement: Application to the State of Arizona, *Environmental Modeling and Assessment* (In Galley Proof)

Lee, S. M., W. Giori, M. Princevac, and H. J. S. Fernando, 2006: Implementation of a stable PBL turbulence parameterization for the Mesoscale Model MM5: Nocturnal flow in complex terrain. *Boundary Layer Meteorology*, DOI: 10.1007/s10546-005-9018-4.

Lee, S. M., S.-C. Yoon, and D. W. Byun, 2004: The Effect of Mass Inconsistency of Meteorological Field Generated by a Meteorological Model on Air Quality Modeling, *Atmospheric Environment,* **38**, 2917-2926.

Lee, S. M. and H. J. S. Fernando, 2004: Evaluation of Mesoscale Meteorological Models, MM5 and HOTMAC using PAFEX-I data, *Journal of Applied Meteorology*, **43**, 1133-1148.

Lee, S. M., H.J.S. Fernando, M. Princevac, D. Zajic, M. Sinesi, J. McCulley, and J. Anderson, 2003: Transport and Diffusion of Ozone in the Nocturnal and Morning PBL of the Phoenix Valley, *Environmental Fluid Mechanics*, 3, 331-362.

Fernando, H. J. S., **S. M. Lee**, J. Anderson, M. Princevac, E. Pardyjak, and S. Grossman-Clarke, 2001: Urban Fluid Mechanics: Air Circulation and Contaminant Dispersion in Cities, *Environmental Fluid Mechanics,* **1**, 1-58.

Meuzelaar, H.L.C., N.S. Arnold, B. Nookala, G.M. Mejía Velázquez, P.O. Medina, J. Ramses-Sánchez, W.-W. Li, J.J. Bang, H.J.S. Fernando, and **S. M. Lee**, 2005: Estimating Particulate Matter Exposure Risks and Evaluating Health Effects of Evening Particulate Matter Peaks Using GIS-Referenced Data Fusion Methods: A Pilot Study. In *The SCERP Monograph series, No. 12, The US-Mexican border environment*, San Diego State University Press

Lee, S. M., and H. J. S. Fernando, 2003: Planetary boundary layer structure in the Paso del Norte airshed: A numerical study. In *The SCERP Monograph series, No. 6, The US-Mexican border environment*, San Diego State University Press.

Lee, S. M., and H. J. S. Fernando, 2003: Numerical simulation of the synoptically influenced local wind in the El Paso airshed. In *The SCERP Monograph series, No. 5, The US-Mexican border environment*, San Diego State University Press.

Byun, D. W., and **S. M. Lee**, 2002: Numerical solution of trace species advection under non-uniform density distribution: Experiment with two-dimensional linear flows. In *Atmospheric Modeling,* Chock D. P., and Carmichael, G. R., Eds., Springer-Verlag New York Inc.

Lee, S. M., H. J. S. Fernando, and J. C. R. Hunt, 2002: A study on synoptically influenced local wind circulation in complex terrain and its application to air quality modeling. In Air Pollution Modelling and Simulation, Sportisse, B. Eds., Springer-Verlag Berlin Heidelberg, Germany.

Professional Societies

American Geophysical Union

Honors and awards

- US Environmental Protection Agency - Appreciation Award, 1999
- Korea Science and Engineering Foundation – Outstanding Student Abroad Trainee Fellowship, 1998
- Korea Research Foundation - Outstanding Student Scholarship, 1995
- Grant Awards:
- Title: Agricultural burns surrounding San Luis Border; Plume pathways and health effects
  Sponsor: Southwest Center for Environmental Research and Policy
  Prime Sponsor: Environmental Protection Agency
- Title: Urban-scale flow modeling
  Sponsor: University of Houston
  Prime Sponsor: Environmental Protection Agency
- Title: Effects of Prescribed Burns on Air Quality in the Yuma/San Luis Area
  Sponsor: Southwest Center for Environmental Research and Policy
  Prime Sponsor: Environmental Protection Agency
- Title: Transborder flux of fugitive dust at Douglas, Arizona – Auga Prieta, Sonora
  Sponsor: New Mexico State University
  Prime Sponsor: Environmental Protection Agency

Service

- Advisory Committee on Full-time, Contract Faculty to the Provost of the Arizona State University, 2003
- Editor of a newsletter of the Korean Atmospheric Scientists Association, 2002

J. Wayne Miller
Adjunct Professor

Degrees

B.S. (Honors), Chemical Engineering, Worcester Polytechnic Institute
Ph.D., Chemical Engineering, California Institute of Technology
Additional training at Harvard Business School and Wharton School

University of California, Riverside, Service

Researcher and adjunct professor at UCR since 2000.

Other Professional Experience

Dr. Miller joined UC-R's CE-CERT lab in December 2000 after a distinguished career with Sunoco Inc. and UNOCAL. Dr. Miller brings more than 29 years of experience in technology planning, new product commercialization, business development and multi-national relationships. He was a member of the Auto/Oil Research Program and more recently participated in the DOE's National Petroleum Council Report (June 2000) on the outlook for the U.S. refining industry over the next five years. He brings a wide range of industrial experience that covers both fuel and lubricant formulation research and the management of projects. Dr. Miller led the largest proprietary research program on the relationship between gasoline properties and tailpipe emissions, resulting in a patent on reformulated gasoline. Current research is concentrated on alternative fuels and the development and validation of methods to measure total gaseous and particulate emissions from engine exhaust with excellent time resolution under both repeatable testing cycles and representative operating conditions. His research is funded by: SERDP, ESTCP, US EPA, California Air Resources Board, California Energy Commission, Health Effects Institute, Coordinating Research Council (auto/oil companies) and several private companies.

- 1995-2001. Vice President for Technology and Product Development**,** Sunoco Inc, Philadelphia, PA.
- 1975-1995. Unocal Corp. Manager, Fuels Technology (1990-94); Manager, Fuels and Lubricants Research (1985-90); Team Leader, Obed Coal Company (1984-85); Supervisor, Exploratory Process Research (1981-85); Senior Research Engineer (1975-81)

Selected Publications

Durbin, T.D.; Wilson, R.D.; Norbeck, J.M.; Miller, J.W.; Huai, T.; and Rhee, S.H. (2002) Estimates of the Emission Rates of Ammonia from Light-Duty Vehicles Using Standard Chassis Dynamometer Test Cycles. *Atmospheric Environment* 36:1475-1482.

Miller, W.; Cocker, D.; Johnson, K.; Norbeck, J.; Park, C.S.; and Welch, W. (2002) Measuring "Real World" Heavy-duty Diesel Emissions with a Mobil Lab. Coordinating Research CouncilVehicle Emissions Workshop April 15-17.

Miller, J.W. (2000) A Refiner's View of the new Diesel Fuel Regulations. Hart's 2000 World Fuel Conference, September 19-21, Washington D.C.

Miller, J.W. (1991) Reformulated Gasoline – Implications for the Future. Society of Automotive Engineers, Los Angeles Section, Anaheim, California, April 9.

Miller, J.W. (1990) Can a Refiner Cope with Reformulated Gasoline? National Conference on The Clean Air Act and Reformulated Fuels, Washington, D.C., October 9-11.

Slowinski, G.; Stanton, S.A.; Tao, J.C.; Miller, J.W.; and McConnell, D.P. (2000) Acquiring External Technology. *Research Technology Management*, 43(5):29-35. September/October.

Henry Sheng
Lecturer

Degrees

Ph.D. in Chemical Engineering, University of Oklahoma.
M.S. in Chemical Engineering, Purdue University.
B.S. in Chemical Engineering, University of Maine.

University of California, Riverside, Service

Lecturer at UCR since 1996.

Other Professional Experience

Teaching:

- California State Polytechnic University (1978-1995).
- Youngstown State University (1968-78).
- New Mexico State University (1957-60).

Professional:

- Westinghouse Electric Corporation, Senior Engineer, Newbury Park, California (1964-65).
- Corning Glass Works, Senior Engineer, Sunnyvale, California (1964).
- Helium Research Center, Research Engineer, Amarillo, Texas (1962-63).
- Columbia-Southern Chemical Corporation, Junior Engineer, New Martinsville, West Virginia (1956-57).

Patents and Patent Applications

- Method and Apparatus for Fluid Separation and Heat Exchange in the presence of a Selectively Wetted Material (U.S. Patent Application No. 648,886, 1968).
- Method and Apparatus for the Continuous Doping of Semiconductor Materials (U.S. patent No. 3,473,510, 1969).
- Method and Apparatus of Separating a Liquid Mixture (U.S. Patent No. 3,471,018, 1969).
- Method for Continuous Doping of Semiconductor Materials (U.S. Patent No. 3,615,944, 1971).
- Electrostatic Dry Former (U.S. Patent No. 4,157,236, 1979).
- Phase Separation Apparatus (U.S. Patent No. 4,311,590, 1982).
- Apparatus for Neutralizing and Removing Fumes (U.S. Patent No. 4,579,569, 1986)
- Method and Apparatus for Separating Oil and Water Emulsion (in progress, 2004)
- Apparatus for Continuous Separation of Two Immiscible Liquids (in progress, 2004)

Consulting (last 10 years)

- Santo Nino Industry, Gardena, CA (1995-present)

- Los Angeles Metropolitan Transportation Authority (1995-1998)
- Bio-Works (Nakano Foods), Cucamonga, CA (1999-2001)
- Panacea, Inc. La Mirada, CA (2000)

Registrations

- Registered Professional Engineer, No. 35794 (Ohio).
- Registered Professional Engineer, CH3578 (California).

Selected Publications

"An Economic Feasibility Study on Method and Approaches for Reduction of Standard Gas Mixture Cylinders" Department of Navy, Metrology Engineering Center, Naval Weapon Station, Pomona, CA. 1983.

"A Technical Feasibility Study for a DC-Driven Oxygen Concentrator by Molecular Sieve" Inspiron Corporation, Cucamonga, CA. December, 1984.

"A Study on Forced Convective Heat Transfer in Helical Recuperator," ASME Transaction. December, 1985.

"Groundwater Monitoring - Unsaturated Zone Monitoring as an Alternative," Hazardous Material Conference '86, Long Beach, December, 1986.

"Management of Waste Hydrofluoric Acid in Microelectronic Industry." Hazardous Materials Conference Proceedings, Anaheim, April 1988.

Professional Societies

American Institute of Chemical Engineers.

Honors and awards

- Tau Beta Pi (National Honorary Engineering Society).
- Sigma Xi (Lifetime member. Executive Secretary, YSU Chapter, 1970-71).
- Fellow, American Institute of Chemical Engineers (2002).
- One of top five U of Maine Engineering Excellence recipients since 1872
- (2004).
- Certificate of Achievement for scoring the highest grade in the state of
- Ohio in Chemical Engineering Examination; Columbus, Ohio (1971).
- Certificate of Achievement for significant contribution to the continued
- excellence of Beloit products; Beloit, Wisconsin (1977).
- Exceptional Meritorious Service Award; California State Polytechnic
- University, Pomona, California (1984 & 1988).
- Outstanding Professional Organization Award; University of California,
- Riverside, CA (1999).

Kawai Tam
Lecturer (Continued Appointment)

Degrees

2002 Ph.D. in Agricultural and Biosystems Engineering, McGill University, Montreal, Quebec, Canada
Thesis Title: Removal of multiple substrates in a mixed microbial culture process for the treatment of brewery wastewater.

1994 M. Eng. in Chemical Engineering, McGill University, Montreal, Quebec, Canada
Thesis Title: Neutralization of an acidic effluent using magnesium hydroxide.

1992 B. Eng. in Chemical Engineering, McGill University, Montreal, Quebec, Canada
Emphasis of studies was in waste treatment and pollution control.

University of California, Riverside, Service

July 2004- Post-doctoral scholar, University of California, Riverside (UCR), CA
Department of Chemical and Environmental Engineering.
Research focus: environmental and dental biofilm systems, piezoelectric and impedance spectroscopy techniques, and protein separation using nanotechnology.

Jan. 2002- Lecturer, UCR, Department of Chemical and Environmental Engineering
Courses taught: Green Engineering / Intro to Chem. and Environ. Engineering / Intro to Bioengineering / Unit Operations and Processes in Environ. Engineering / Process Dynamics and Control / Chemical Process Design / Senior Design Project / Heat Transfer / Solid Waste Management / Chem. & Environ. Engineering Laboratory

1997-1998 Lecturer and Research Assistant, UCR, Department of Chem. and Environ. Eng.
Courses taught: Kinetics / Thermodynamics / Air Pollution Control / Heat Transfer / Separation Processes / Mass Transfer / Water Quality / Unit Operations
Research focus: Biological wastewater treatment and incorporation of molecular and traditional microbiological techniques for the monitoring of microbial interactions. Lab support for the air pollution division at UCR.

Other Professional Experience

1994-1996 Research Assistant and Teaching Assistant, McGill University, Montreal, QC, Canada
Department of Agricultural and Biosystems Engineering
Research focus: Conducted experiments in the fields of wastewater treatment and microbial interactions using a semi-automated reactor system.
Courses taught: Food Engineering / Mechanics.

1992-1994 Teaching Assistant, McGill University, Montreal, Quebec, Canada
Department of Chemical Engineering
Courses taught: Instrument Measurement Lab / Process Design / Separation Processes.

Consulting and Patents

1994-1995 Consultant, Corona Technologies Inc., Vaudreuil, Quebec, Canada,
Project: Evaluation of an innovative corona based air purification system to extend the shelf-life and to maintain the quality of table grapes.Experimental research was conducted at the Agriculture and Agri-Food Canada Research Centre in St-Hyacinthe, Quebec.

Publications

K. Tam, N. Kinsinger, P. Ayala, F. Qi, W. Shi, N. V. Myung, "Real-time monitoring of *Streptococcus mutans* biofilm formation using quartz crystal microbalance", paper submitted to Caries Research

K. Tam, M. R. Matsumoto, J. D. Sheppard, "A kinetic model for suspended and attached growth of a defined mixed culture", *Biotechnology Progress,* 21(3), 720 – 727, 2005.

K. Tam, C.H. Yang, D. E. Crowley, M. R. Matsumoto, J.D. Sheppard, "Comparison of PCR-DGGE and selective plating methods for monitoring the dynamics of a mixed culture population in synthetic brewery wastewater", *Biotechnology Progress,* 21(3), 712 – 719, 2005.

J. Kreth, E. Hagerman, **K. Tam**, J. Merritt, B. M. Wu, N. V. Myung, W. Shi, F. Qi, "Quantitative analyses of *Streptococcus mutans* biofilms with quartz crystal microbalance, microjet impingement, and confocal microscopy," *Biofilms*, 1, 277-284, 2004.

Professional Societies

2003- Member of the American Society of Microbiology (ASM)
1991- Member of the American Institute of Chemical Engineers (AIChE)

Honors and awards

UCR Non-Senate Faculty (NSF) Professional Development Fund Award, March 2006

The Marlan and Rosemary Bourns College of Engineering Outstanding Lecturer Award, for academic year 2004-2005

ACS PRF scholarship for training on Sustainability Science and Technology at the Massachusetts Institute of Technology, August 7 – 13, 2005

Service

Peer Reviewer: Applied Biochemistry and Biotechnology / Biotechnology Progress

Professional Development

ACS PRF training on Sustainability Science and Technology at the Massachusetts Institute of Technology, August 7 – 13, 2005

AIChE / ASME course on Fundamentals of Process Safety, Vancouver, B.C., May 25-26, 2006.