Donald Dabdub

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Irvine, CA 92617
(949) 856-0847

Position: Professor V

Birth: Masaya, Nicaragua. March 14, 1968

Citizenship: U.S.A.

Education:

Ph. D., Chemical Engineering 1995
California Institute of Technology

M. S., Chemical Engineering 1992
California Institute of Technology

B. S., Chemical Engineering 1990
Lehigh University

Professional Interests:

Atmospheric Sciences: Mathematical modeling of air pollution dynamics. Dynamics of atmospheric aerosols. Chemical reactions at gas-liquid interfaces. Impact of energy generation on air quality.

Computational Sciences: Applied mathematics. Numerical algorithms on massively parallel computers. Grid-based computations.

Academic Appmnts:

Associate Dean, Undergraduate Education 2015–present
Professor 2005–present
Associate Professor 2001–2005
Assistant Professor 1995–2001
Mechanical and Aerospace Engineering
Advanced Power and Energy Program
University of California, Irvine

Awards and Honors:

Mechanical and Aerospace Engineering Professor of the Year	2014–2015
Senior Innovation in Teaching Award	2014
Mechanical and Aerospace Engineering Professor of the Year	2008–2009
Pi Tau Sigma Honorary Professor Award	2005
Gaspar de Portola International Fellowship	2002
UCI Project Prometheus Teaching Award	2001
National Science Foundation CAREER award	2000
W. E. Schiesser Distinguished Lecture, Lehigh University	1999
UCI Faculty Career Development Award	1997–1998
William Corcoran Fellowship	1990–1995
Tau Beta Pi National Engineering Honor Society	1987
Phi Eta Sigma National Honor Society	1986

Professional Affiliations: American Association for Aerosol Research
Society of Hispanic Professional Engineers

Advisory Role

Electric Power Research Institute	2013
Department of Energy. Environmental Molecular Sciences Laboratory (EMSL)	2013
California Energy Commission: implications of natural gas interchangeability for California gas customers	2006–2010
John Wayne Airport: air quality technical advisory committee	2005–2006
University of California Riverside: Department of Mechanical Engineering	2004
U. S. Department of Defense panel: military simulations on SPPs	2002
Air Resources Board of California: the weekend ozone effect	2002
Member of the U. S. Department of Energy panel: tropospheric aerosol program	2001

Consulting

Government: Environmental Protection Agency. Paid.	2015
Academic: Report to the UC Davis Vice Chancellor to review the UC Davis Air Quality Research Center. Paid.	2014
Industry: Mitsubishi Electric & Electronics USA, Inc. Paid.	2009
Government: California Air Resources Board. Paid.	2001
Government: Environmental Protection Agency. Paid.	1999

Professional Offices

Board of Directors, American Association for Aerosol Research.	2014–2017
Awards Committee, Hispanic Engineer National Achievement Awards (HENAAC)	2016
Awards Committee, American Association for Aerosol Research.	2013–2016
Director Internet Committee, American Association for Aerosol Research.	2003–2005
Member Internet Committee, American Association for Aerosol Research.	2002–2003
Atmospheric Chemistry Committee, American Meteorological Society.	1999–2003

Conference Organizer

10th International Aerosol Conference. St. Louis, MO. September, 2018.

36th Annual American Association for Aerosol Research Conference. Raleigh, NC. October, 2017.

35th Annual American Association for Aerosol Research Conference. Portland, OR. October, 2016.

34th Annual American Association for Aerosol Research Conference. Minneapolis, MN. October, 2015.

33rd Annual American Association for Aerosol Research Conference. Orlando, FL. October, 2014.

32nd Annual American Association for Aerosol Research Conference. Portland, OR. October, 2013.

31st Annual American Association for Aerosol Research Conference. Minneapolis, MN. October, 2012.

2011 International Aerosol Modeling Algorithms. Davis, CA. December, 2011.

30th Annual American Association for Aerosol Research Conference. Orlando, FL. October, 2011.

2011 International Colloquium on the Dynamics of Explosions and Reactive Systems. Irvine, CA. July, 2011.

29th Annual American Association for Aerosol Research Conference. Portland, OR. October, 2010.

American Association for Aerosol Research 2010 Specialty Conference. Air Pollution and Health: Bridging the gap from sources to health outcomes. San Diego, CA. March, 2010.

28th Annual American Association for Aerosol Research Conference. Minneapolis, MN. October, 2009.

27th Annual American Association for Aerosol Research Conference. Orlando, FL. October, 2008.

International Aerosol Modeling Algorithms Conference. Davis, CA. December, 2007.

26th Annual American Association for Aerosol Research Conference. Reno, NV. September, 2007.

2006 International Aerosol Conference. St. Paul, MN. September, 2006.

24th Annual American Association for Aerosol Research Conference. Austin, TX. October, 2005.

American Association for Aerosol Research 2005 Specialty Conference. Particulate Matter Supersites Program and Related Studies. Atlanta, GA. February, 2005.

22nd Annual Symposium on Kinetics and Photochemical Processes in the Atmosphere. Irvine, CA. Conference Chairman. February, 2005.

23rd Annual American Association for Aerosol Research Conference. Atlanta, GA. October, 2004.

22nd Annual American Association for Aerosol Research Conference. Anaheim, CA. October, 2003.

Workshop on Chemistry at Interfaces. Newport Beach, CA. June, 2004.

21st Annual American Association for Aerosol Research Conference. Charlotte, NC. October, 2002.

19th Annual American Association for Aerosol Research Conference. St. Louis, MO. November, 2000.

The Future of Problem Solving Environments. National Science Foundation—Division of Advanced Scientific Computing. Irvine, CA. August, 1996.

Session Chairman

National Academy of Sciences US-Iran Symposium on Air Pollution in Megacities. Irvine, CA.	2013
AirUCI annual workshop. Laguna Beach, CA.	2013
AirUCI annual workshop. Laguna Beach, CA.	2012
2011 International Aerosol Modeling Algorithms. Davis, CA.	2011
30th Annual American Association for Aerosol Research Conference. Orlando, FL.	2011
Brazilian Association for Aerosol Research. Rio de Janeiro, Brazil.	2011
AirUCI annual workshop. Laguna Beach, CA.	2011
AirUCI annual workshop. Laguna Beach, CA.	2010
AirUCI annual workshop. Laguna Beach, CA.	2009
AirUCI annual workshop. Newport Beach, CA.	2008
AirUCI annual workshop. Christchurch, New Zealand.	2006
AirUCI annual workshop. Laguna Beach, CA.	2006
AirUCI annual workshop. Prague, Czech Republic.	2005
Workshop Chemistry at Interfaces. Newport Beach, CA.	2004
Annual American Association for Aerosol Research Conferences.	1998–2004

Journals Served as Reviewer
Aerosol Science and Technology
Applied Numerical Mathematics
Atmospheric Chemistry and Physics
Atmospheric Environment
Environmental Engineering and Management Journal
Environmental Science & Technology
Geophysical Research Letters
International Journal of Electrical Power & Energy Systems
International Journal of Environment and Pollution
International Journal of Sustainable Transportation
Journal of Environmental Engineering and Science
Journal of Geophysical Research
Journal of the Air & Waste Management Association
Global Biogeochemical Cycles
Nature Geoscience
Numerical Methods for Partial Differential Equations
Proceedings of the National Academy of Sciences
Royal Meteorological Society
Science
Water, Air and Soil Pollution

Agencies Served as Reviewer
American Association for the Advancement of Science
American Chemical Society—Petroleum Research Fund
Canadian Foundation for Climate and Atmospheric Sciences
Danish Council for Independent Research - Natural Sciences
Environmental Protection Agency — Science to Achieve Results (STAR) Graduate Fellowship Program
Israel Science Foundation
National Science Foundation—Division of Atmospheric and Geospace Sciences
National Science Foundation—Division of Atmospheric Sciences
National Science Foundation—Division of Chemistry
National Science Foundation—Division of Computational Mathematics
National Science Foundation—Division of Environmental Technology
National Science Foundation—Division of Geosciences
National Science Foundation—Division of Mathematical Sciences
National Science Foundation—Division of Polar Programs
National Science Foundation—Faculty Early Career Development (CAREER) program
National Science Foundation—Office of International Science and Engineering
NASA: written reviewer and member of panel jury
Research Grants Council (RGC) of Hong Kong
Tahoe Science Consortium

Publishers Served as Reviewer
Cambridge University Press
CRC Press
Elsevier
Prentice Hall

Advisees: **Ph.D. Students**

Jeremy R. Horne, Advisor. 2012–present.

Jin Dang. Thesis: Himalayan field measurements of in-use solid fuel cookstove emissions: data collection and analysis. Member of doctoral committee. Graduated 2016.

Andrés Colorado. Thesis: Pollutant emissions and lean blowoff limits of ultra-fuel flexible burners operating on gaseous renewable and fossil fuels. Member of doctoral committee. Graduated 2016.

Michael Mac Kinnon. Thesis: Assessment of emerging regional air quality (AQ) and greenhouse gas (GHG) impacts and potential mitigation strategies in U.S. Energy sectors. Member of doctoral committee. Graduated 2015.

Howard H. Lee. Thesis: NOx emissions characteristics in the wake of an air jet injected into a fuel rich vitiated crossflow. Member of doctoral committee. Graduated 2014.

Brian Tarroja. Thesis: Advising and optimizing the deployment of sustainability-oriented technologies in the integrated electricity, light-duty transportation, and water supply system. Member of doctoral committee. Graduated 2014.

Joseph J. Ensberg. Thesis: Studies of ambient organic and inorganic aerosol in Southern California. Member of doctoral committee. California Institute of Technology. Graduated 2014.

Andrés Colorado, Member of advancement to candidacy committee. Advanced 2014.

Jin Dang, Member of advancement to candidacy committee. Advanced 2014.

Albert Jordá Juanós, Member of advancement to candidacy committee. Advanced 2014.

Alireza Kalantari, Member of advancement to candidacy committee. Advanced 2014.

Jordan Schnell, Member of advancement to candidacy committee. Advanced 2013.

Ghazal Razeghi. Thesis: The development and evaluation of a highly-resolved California electricity market model to characterize the temporal and spatial grid, environmental, and economic impacts of electric vehicles. Member of doctoral committee. Graduated 2013.

Alex Cohan, Advisor. Thesis: Characterization of air pollution at high-resolution scales and health impact implications. Post-UCI: Lake Michigan Air Directors Consortium (LADCO). Graduated 2012.

Andrew Martinez. Thesis: Simulation of dynamic operation and coke-based degradation for SOFC-GT-powered medium and long haul locomotives. Member of doctoral committee. Graduated 2011.

Wayne L. Chang, Advisor. Thesis: Modeling atmospheric secondary organic aerosol dynamics through chemistry, emissions, and partitioning theory. Post-UCI: Postdoctoral scholar, University of Illinois at Urbana Champaign. Graduated 2011.

Kyung Man Kim. Thesis: The effects of carbon-in-ash on mercury capture from flue gas. Member of doctoral committee. Graduated 2010.

Paul M. Nissenson, Advisor. Thesis: The role of interfacial processes in the photochemical dynamics of aerosols. Post-UCI: Assistant Professor, Mechanical Engineering, Cal Poly Pomona. Graduated 2009.

Pedro Jiménez Guerrero. Thesis: Air quality modeling in very complex terrains: ozone dynamics in the northeastern Iberian peninsula. Member of doctoral committee. Universitat Politècnica de Catalunya. Departament de Projectes d'Enginyeria. Graduated 2009.

Satish Vutukuru, Advisor. Thesis: Modeling and analysis of secondary particulate matter formation in the atmosphere. Post-UCI: ICF International. Graduated 2008.

Marc Carreras-Sospedra, Advisor. Thesis: Air quality modeling of future electricity production. Post-UCI: Postdoctoral scholar, CES Laboratory. Graduated 2007.

Marco A. Rodriguez, Advisor. Thesis: Dynamics of multicomponent size-resolved aerosol dynamics in a global chemical transport model. Post-UCI: Cooperative Institute for Research in the Atmosphere. Graduated 2004.

Eladio M. Knipping, Advisor. Thesis: Modeling urban coastal chemistry. Post-UCI: Project Manager, Air Quality, Health & Risk Assessment. Electric Power Research Institute. Graduated 2002.

Khoi Nguyen, Advisor. Thesis: Mathematical modeling of air pollution dynamics. Post-UCI: Prof. of Science and Mathematics, Columbia College (Chicago). Graduated 2002.

Robert J. Griffin. Thesis: Experimental and computational studies of secondary organic aerosol formation. Member of doctoral committee. California Institute of Technology. Graduated 2000.

Jay R. Odum. Thesis: Secondary organic aerosol formation and gas/aerosol partitioning. Member of doctoral committee. California Institute of Technology. Graduated 1998.

M.S. Students

Kate E. Forrest, Member of master committee. Graduated 2016.

Ken Chen, Advisor. Graduated 2015.

Sara Rahiminejad, Advisor. Graduated 2015.

Jeremy R. Horne. Advisor. Graduate 2015.

Alicia Tan, Member of master committee. Graduated 2013.

Jeff Ngarmboonta, Advisor. Post-UCI: Meridian Link. Graduated 2013.

Brian Tarroja, Member of master committee. Graduated 2011.

Fernan Saiz-Poyatos, Advisor. Post-UCI: Doctoral studies at UCI. Graduated 2011.

Alex Cohan, Advisor. Post-UCI: Doctoral studies at UCI. Graduated 2010.

Wayne L. Chang, Advisor. Post-UCI: Doctoral studies at UCI. Graduated 2010.

Paul M. Nissenson, Advisor. Post-UCI: Doctoral studies at UCI. Graduated 2007.

Nasser Abbasi, Advisor. Graduated 2006.

Tzvetan Emilov Sariyski. Post-UCI: Combustion Research and Flow Technology, Inc. Graduated 2000.

Amy L. Schmieder, Advisor. Post-UCI: UC Berkeley business school. Graduated 1998.

Undergraduate Students

Ly, Braveson. 2015–present.

Soroka, Emiko Lynn. 2016.

Tang, Jonathan H. 2015–present.

Tran, Daniel. 2016–present.

Boado, Ethan Sullivan. 2013–2016.

Lee, Justin Dong-Il. 2016.

Muresan, Fabian 2016.

Siino, Christopher Michael. 2015–2016.

Khechadoorian, Zepyoor. 2014–2015.

Lau, Raymond. 2013–2015. Post-UCI: doctoral studies at UC Berkeley, Mechanical Engineering.

Ly, Viet Thanh. 2015–2015.

Trejo, Roberto Javier. 2014–2015. Post-project: continue undergraduate studies at UCI, Mechanical and Aerospace Engineering.

Defuria, Dean Anthony. 2013–2014. Post-project: continue undergraduate studies at UCI, Mechanical and Aerospace Engineering.

Zack, Darren. 2012–2014. Post-UCI: industry.

Donikian, Vatche. 2012–2013. Post-project: continue doctoral studies at UCI, Mechanical and Aerospace Engineering.

Jani, Aditya. 2012–2013. Post-UCI: doctoral studies at Rice University, Civil and Environmental Engineering.

Horne, Jeremy R.. Graduated 2012. Post-UCI: doctoral studies at UCI, Mechanical and Aerospace Engineering.

Sale, Kevin. 2011–2012. Post-project: continue undergraduate studies at UCI, Mechanical and Aerospace Engineering.

Chen, Lee-Huang. 2010–2011. Post-UCI: doctoral studies at UC Berkeley, Mechanical Engineering.

Ensberg, Joseph. Graduated 2009. Post-UCI: doctoral studies at Caltech, Chemical Engineering.

Wilschke, Jeff. Graduated 2009. Post-UCI: graduate studies at UCLA, Aerospace Engineering.

Chang, Wayne. Graduated 2006. Post-UCI: doctoral studies at UCI, Mechanical and Aerospace Engineering.

Allen, William. 2004–2005. Post-UCI: undergraduate studies at the University of Nottingham (England).

Carmody, Kevin . Graduated 2005. Post-UCI: industry.

Regele, Jonathan. Graduated 2001. Post-UCI: doctoral studies at the University of Colorado, Theoretical Physics.

Worsley, Scott. Graduated 2001. Post-UCI: undergraduate studies at Harvard University, Mathematics.

Leverkuehn, Chris P. Graduated 2000. Post-UCI: graduate studies at King's College (England), Applied Mathematics.

Other Academic Advising

Eduardo Martins. Research Scientist.	2016–present
Shupeng Zhu. Post-doctoral researcher.	2016–present
Marc Carreras-Sospedra. Research Scientist.	2012–present
Matthew L. Dawson. Post-doctoral researcher.	2014–2016
Andrew Martinez. Post-doctoral researcher.	2011–2014
Jialu Xu. Visiting doctoral student.	2013
Oriol Jorba-Casellas. Visiting post-doctoral researcher.	2011 and 2013
Marc Carreras-Sospedra. Post-doctoral researcher.	2007–2012
Paul Nissenson. Post-doctoral researcher.	2009–2011
Eva Melgar-Paniagua. Visiting doctoral student.	2011
María Gonçalves Ageitos. Visiting post-doctoral researcher.	2010
María Teresa Pay. Visiting doctoral student.	2009
Prasad Pokkunuri. Post-doctoral researcher.	2008
Daniel Packwood. Visiting doctoral student.	2008
Khoi Nguyen. Visiting post-doctoral researcher.	2004–2005
Angel Jimenez. Post-doctoral researcher.	2003–2004
Marco Rodríguez. Post-doctoral researcher.	2004
Eladio Knipping. Post-doctoral researcher.	2003
Pedro Jimenez. Visiting doctoral student.	2002

Extramural Funding:

- Atmospheric modeling algorithms for massively parallel architectures. Environmental Protection Agency subcontract PC180084. 1995–1996. Monetary Level: $25,000. Role: Co-PI.
- Environmental Protection Agency. 288 hours of computer time on the Cray C90 Supercomputer. 1995–1996. Role: PI.
- Environmental Protection Agency. Unlimited computer time on the Cray T3D Supercomputer. 1995–1996. Role: PI.
- Integration of Problem Solving Environments on air quality models. National Science Foundation. 1996–1997. Monetary Level: $135,000. Role: Co-PI.
- Dynamics of ozone in the San Joaquin Valley of California. Exxon Educational Foundation. 1997. Monetary Level: $15,000 overhead free. Role: PI.
- Impact of air quality on global climate change. EPRI. 1997–1998. Monetary Level: $12,600. Role: PI.
- Mathematical modeling of air toxic dynamics. Toxic Substance Research Program. 1997–1998. Monetary Level: $12,600. Role: PI.
- Dynamics of ozone in the San Joaquin Valley of California. Exxon Educational Foundation. 1998. Monetary Level: $10,000 overhead free. Role: PI.
- Center for Advanced Computing Research. 100,000 node-hours of computer time per quarter on the Intel Touchstone Delta Supercomputer. 1995–1998. Role: PI.
- Center for Advanced Computing Research. 5120 node-hours of computer time per quarter on the Intel Paragon Supercomputer. 1995–1998. Role: PI.
- Integration of Problem Solving Environments on air quality models. National Science Foundation. 1997–1999. Monetary Level: $35,000. Role: Co-PI.
- Laboratory and modeling studies of atmospheric chlorine: formation of due to sea-salt particles and environmental impact. University of California Council on Research, Computing and Library Resources. 1999–2000. Monetary Level: $20,000. Role: PI.
- Ozone and fine particle formation in California and in the Northeastern United States. Environmental Protection Agency. 1998–2001. Monetary Level: $139,500. Role: Co-PI.
- Laboratory studies of the role of halogen chemistry in the formation and fate of ozone in the remote and polluted troposphere. U. S. Department of Energy. 1998–2001. Monetary Level: $650,750. (Most of the funds are to be used for equipment in the school of Chemistry. $30,611 are under my discretionary control.) Role: Co-PI.

- The formation and fate of gaseous nitrous acid (HONO): A key component in determining tropospheric ozone and fine particles. California Air Resources Board. 1998–2001. Monetary Level: $298,271. Role: Co-PI.
- Computational implementation of a size and chemically resolved aerosol chemical transport model for the global troposphere. National Partnership for Advanced Computational Infrastructure (NPACI), National Science Foundation. 10,000 node-hours of computer time on the IBM SP, and 500 node-hours on the Cray SV1. 2000–2001. Role: PI.
- UCI Desktop Computing Award. March 2001. Monetary Level: $2,125. Role: PI.
- The reaction of NaCl particles with NO3/N2O5: a potential source of nighttime chlorine compounds. Division of Atmospheric Sciences, Atmospheric Chemistry, National Science Foundation. 2000–2002. Monetary Level under my discretionary control: $98,000. Role: Co-PI.
- Chlorine emissions from activated sea-salt aerosols and their potential on ozone. California Air Resources Board. 2001–2002. Monetary Level: $15,000. Role: PI.
- Development of a new generation atmospheric model: assessment of energy generation impacts and alternative strategies. Link Foundation. 2001–2002. Monetary Level: $20,000. Role: PI.
- Modeling the dynamics and chemistry of atmospheric aerosols. National Science Foundation. 1998–2002. Monetary Level: $160,000. Role: PI.
- Ozone weekend effect. California Air Resources Board. 2001–2002. Monetary Level: $7,500. Role: PI.
- The National Partnership for Advanced Computational Infrastructure. National Science Foundation. 1997–2002. Monetary Level: $50,000. Role: Co-PI.
- Impact of altering NO/NO2 splits in NO_x emissions from trap-equipped diesel sources using 2010 emission inventory estimates. California Air Resources Board. 2002–2003. Monetary Level: $35,000. Role: PI.
- Modeling inorganic and organic atmospheric aerosols. Sub-contract University of Houston. 2002–2003. Monetary Level: $80,000. Role: PI.
- Mathematical modeling of particulate matter in Houston. Sub-contract University of Houston. 2002–2003. Monetary Level: $160,693. Role: PI.
- Mathematical modeling of secondary organic aerosol. Electric Power Research Institute. 2003. Monetary Level: $15,000. Role: PI.
- CAREER: Modeling multicomponent size-resolved aerosol dynamics in a global chemical transport model. National Science Foundation. 2000–2005. Monetary Level: $338,784.00. Role: PI.
- Computational simulation of the atmospheric chemistry of alkanes. Sub-contract University of New Hampshire. 2005. Monetary Level: $10,000. Role: consultant.
- Modeling Analyses in Southern California in Support of SECA. California Air Resources Board. 2005–2006. Monetary Level: $50,000. Reduced overhead. Role: PI.
- Air quality impact of distributed power generation. California Energy Commission. 2002–2006. Monetary Level under my discretionary control: $698,689. Role: Co-PI.
- UCI Desktop Computing Award. 2007. Monetary Level: $1,700. Role: PI.
- Air quality impacts of distributed generation in the Eastern United States. Electric Power Research Institute. 2007. Monetary Level: $10,000. Role: PI.
- How new chemistry findings affect our understanding of the weekend effect—A modeling study. California Air Resources Board. 2005–2007. Monetary Level: $150,000. Role: PI.
- Determining relative air quality impacts of three personal vehicle options in 2010. Toyota Motor Sales. 2006–2007. Monetary Level: $53,107. Role: Co-PI.
- Air quality impact of distributed power generation in the San Joaquin Valley of California. California Air Resources Board. California Energy Commission. 2006–2008. Monetary Level: $480,000. Role: Co-PI.

- An integrated approach to understanding the air-water interface in atmospherically relevant systems. National Science Foundation. 2002–2008. Monetary Level: $3,519,248. Role: Co-PI.
- N_2O_5 issues on air quality modeling. California Air Resources Board. 2007–2008. Monetary Level: $15,000. Role: PI.
- Air oxidants increase bioavailability of lead house paint leading to increased childhood lead poisoning in Los Angeles County, California. Housing and Urban Development. 2007–2009. Monetary Level: $745,471. Role: Co-PI.
- Impacts of excited NO2 on ozone production. Undergraduate Research Opportunities Program. University of California, Irvine. 2008–2009. Monetary Level: $200. Role: PI.
- The Henry Samueli School of Engineering Council on Research and Computing and Libraries (CORCL) Research and Travel. 2009. Monetary Level: $614. Role: PI.
- Modeling population exposure to key air pollutants in communities adjacent to the ports of Los Angeles and Long Beach. Environment Institute. 2009. Monetary Level: $31,000. Role: PI.
- Plug-in hybrid vehicles. California Air Resources Board. 2007–2010. Monetary Level: $1,200,000. Role: Co-PI.
- Evaluation of the impact of LNG fuel variability on ambient air quality. California Energy Commission. 2008–2010. Monetary Level: $100,000. Role: PI.
- California-Catalonia Visiting Scholar Program. 2011. Monetary Level: $2,992. Role: PI.
- Local distributed generation impacts on regional air quality. California Energy Commission. 2009–2011. Monetary Level: $125,000. Role: PI.
- Effects of climate change and greenhouse gas mitigation strategies on air quality in the U.S. Environmental Protection Agency. 2009–2012. Monetary Level: $600,000. Role: Co-PI.
- Air quality and greenhouse gas impacts of renewable power in California. California Energy Commission. 2010–2013. Monetary Level: $500,000. Role: Co-PI.
- Development of a model to predict pollutant emissions and air quality based on variations in the quality of pipeline natural gas. California Air Resources Board. 2012–2013. Monetary Level: $ 149,907. Role: PI.
- Air quality and GHG impacts of more renewable electric future. California Energy Commission. 2010–2014. Monetary Level: $499,980. Role: Co-PI.
- Energy, air quality, water and climate change co-benefits of renewable generation and fuels roadmap. California Energy Commission. 2011–2014. Monetary Level: $157,966. Role: Co-PI.
- Economically viable strategies for conversion of biogas and biomass to power that facilitate California air quality goals. California Energy Commission. 2011–2014. Monetary Level: $397,236. Role: Co-PI.
- Assessment of the emissions and energy impacts of biomass and biogas use in California. California Air Resources Board. 2012–2014. Monetary Level: $142,497. Role: PI.
- A comprehensive approach to understanding chemistry at interfaces and atmospheric implications. National Science Foundation. 2009–2015. Monetary Level: $9,984,244. Role: Co-PI.
- Enhancement of the TEMPLES model to accommodate fugitive emissions from natural gas production, processing, transmission and distribution in California. California Air Resources Board. 2014–2016. Monetary Level: $60,000. Role: PI.
- Implementing particle-resolved aqueous phase chemistry into PartMC-MOSAIC for a detailed treatment of aerosol-cloud interactions. National Science Foundation. 2015–2016. Monetary Level: $41,085. Role: PI.
- Development of the next generation air quality model - new approaches to parallelization and portability. Council on Research Computing and Libraries. 2015–2016. Monetary Level: $10,000. Role: PI.

- Partnership with Rice University. External Partners Program. 2015–2016. Monetary Level: $4,913. Role: PI.
- Photodegradation of oxygenated polycyclic aromatic hydrocarbons on environmental interfaces. National Science Foundation. Chemistry Division. 2012–2016. Monetary Level: $80,000. Role: PI.
- Sensitivity analyses for distributed generation scenarios. Electric Power Research Institute. 2016. Monetary Level: $30,000. Role: PI.
- Current trends and future air quality impacts of small-scale distributed generation. Electric Power Research Institute. 2013–2016. Monetary Level: $170,000. Role: PI.
- Effects of ammonia on secondary organic aerosol formation in a changing climate. Environmental Protection Agency. 2016–2018. Monetary Level: $701,304. Role: PI.
- Collaborative Research: The role of singlet molecular oxygen in urban atmospheres rich in polycyclic aromatic hydrocarbons. National Science Foundation. 2016–2019. Monetary Level: $80,000. Role: PI.

Book Chapters:

BC1 Emerging air quality modeling techniques for high performance computing and communication environments. Byun D. W., Dabdub D., Fine S., Hanna A. F., Mathur R., Odman M. T., Russell A., Segall E. J., Seinfeld, J. H., Steenkiste P. and Young J. *Air pollution modeling and its application.* Proceedings of the 21st NATO/CCMS Meeting. New York, Plenum Press.

BC2 Managing specificity and generality: tailoring general archetypal PSEs to specific users. Dabdub D., Chandy K. M. and Hewett T. *Enabling technologies for computational science: frameworks, middleware and environments.* Houstis E. N. and Rice J. R. editors. Kluwer Academic Publishers.

BC3 Multiscale air quality with the NMMB/BSC chemical transport model. Jorba O., Perez C., Haustein K., Janjic Z., Baldasano J. M., Dabdub D., Badia A. and Spada M. *Air pollution modeling and its applications XXII.* Proceedings of the 32nd NATO/SPS International Technical Meeting on Air Pollution Modeling and its Application. Utrecht, Netherlands. (2014) doi: 10.1007/978-94-007-5577-2_53

Journal Articles:

J1 High-molecular-weight polymer segment distribution in small latex-particles. Dabdub D., Klein A. and Sperling L. H. *J. of Polymer Sciences Part B: Polymer Physics* **30,** No. 7 (1992) 787–789.

J2 Air quality modeling on massively parallel computers. Dabdub D. and Seinfeld J. H. *Atmospheric Environment* **28,** (1994) 1679–1687.

J3 Numerical advective schemes used in air quality models—Sequential and parallel implementation. Dabdub D. and Seinfeld J. H. *Atmospheric Environment* **28,** (1994) 3369–3385.

J4 Extrapolation techniques used in the solution of stiff ODEs associated with chemical kinetics of air quality models. Dabdub D. and Seinfeld J. H. *Atmospheric Environment* **29,** (1995) 403–410.

J5 Parallel computation in atmospheric chemical modeling. Dabdub D. and Seinfeld J. H. *Parallel Computing* **22,** (1996) 111–130.

J6 Chemical coupling between atmospheric ozone and particulate matter. Meng Z., Dabdub D. and Seinfeld J. H. *Science* **277,** No 5322 (1997) 116–119.

J7 Benchmarking stiff ODE solvers for atmospheric chemistry problems I: implicit versus explicit. Sandu A., Verwer J. G., van Loon M., Carmichael G. R., Potra F. A., Dabdub D. and Seinfeld J. H. *Atmospheric Environment* **31,** (1997) 3149–3164.

J8 Performance and portability of an air quality model. Dabdub D. and Manohar R. *Parallel Computing* **23,** (1997) 2187–2200.

J9 Size-resolved and chemically resolved model of atmospheric aerosol dynamics. Meng Z., Dabdub D. and Seinfeld J. H. *Journal of Geophysical Research* **103,** (1998) 3419–3436.

J10 Modeling bronchial circulation with application to soluble gas exchange: description and sensitivity analysis. Bui T. D., Dabdub D. and George S. C. *Journal of Applied Physiology* **84,** (1998) 2070–2088.

J11 Analysis of Ozone in the San Joaquin Valley of California. Dabdub D., Dehaan L. L. and Seinfeld J. H. *Atmospheric Environment* **33,** (1999) 2501–2514.

J12 Estimate of global atmospheric organic aerosol from oxidation of biogenic hydrocarbons. Griffin R. J., Cocker D. R., Seinfeld J. H. and Dabdub D. *Geophysical Research Letters* **26,** (1999) 2721–2724.

J13 Determination of domain for diagnostic wind field estimation. Kim J. Y., Ghim Y. S., Kim Y. P. and Dabdub D. *Atmospheric Environment* **34,** (2000) 595–601.

J14 Experiments and simulations of ion-enhanced interfacial chemistry on aqueous NaCl aerosols. Knipping E. M., Lakin M. J., Foster K. L., Jungwirth P., Tobias D. J., Gerber R. B., Dabdub D. and Finlayson–Pitts B. J. *Science* **288,** (2000) 301–306.

J15 Effect of alveolar volume and sequential filling on the diffusing capacity of the lungs: II. Experiment Tsoukias N. M., Dabdub D., Wilson A. F. and George S. C. *Respiration Physiology* **120,** (2000) 251–271.

J16 Two level time marching scheme using splines for solving the advection equation. Nguyen K. and Dabdub D. *Atmospheric Environment* **35,** (2001) 1627–1637.

J17 Numerical solution of the aerosol condensation/evaporation equation. Nguyen K. and Dabdub D. *Computational Science* **2074,** (2001) 77–81. doi: 10.1007/3-540-45718-6

J18 Semi-Lagrangian flux scheme for the solution of aerosol condensation/evaporation equation. Nguyen K. and Dabdub D. *Aerosol Science & Technology* **36,** (2002) 407–418.

J19 NO_x and VOC control and its effects on the formation of aerosols. Nguyen K. and Dabdub D. *Aerosol Science & Technology* **36,** (2002) 560–572.

J20 Modeling surface-mediated renoxification of the atmosphere via reaction of gaseous nitric oxide with deposited nitric acid. Knipping E. M. and Dabdub D. *Atmospheric Environment* **36,** (2002) 5741–5748.

J21 Secondary organic aerosol: 1. Atmospheric chemical mechanism for production of molecular constituents. Griffin R. J., Dabdub D. and Seinfeld J. H. *Journal of Geophysical Research* **107,** (D17), 4332, doi: 10.1029/2001JD000541 (2002).

J22 Secondary organic aerosol: 3. Urban/regional scale model of size- and composition-resolved aerosols. Griffin R. J., Dabdub D., Kleeman M. J., Fraser M. P., Cass G. R. and Seinfeld J. H. *Journal of Geophysical Research* **107,** (D17), 4334, doi: 10.1029/2001JD000544 (2002).

J23 Modeling study of Cl_2 formation from aqueous NaCl particles: Evidence for interfacial reactions and importance of Cl_2 decomposition in alkaline solution. Knipping E. M. and Dabdub D. *Journal of Geophysical Research* **107,** (D18), 4360, doi: 10.1029/2001JD000867 (2002).

J24 Impact of chlorine emissions from sea-salt aerosol on coastal urban ozone. Knipping E. M. and Dabdub D. *Environmental Science & Technology* **37,** (2003) 275–284. doi: 10.1021/es025793z

J25 A coupled hydrophobic-hydrophilic model for predicting secondary organic aerosol formation. Griffin R. J., Nguyen K., Dabdub D. and Seinfeld J. H. *Journal of Atmospheric Chemistry* **44,** (2003) 171–190.

J26 Development and analysis of a non-splitting solution for three-dimensional air quality models. Nguyen K. and Dabdub D. *Atmospheric Environment* **37,** (2003) 3741–3748. doi: 10.1016/S1352-2310(03)00348-0

J27 Monte Carlo uncertainty and sensitivity analysis of the CACM chemical mechanism. Rodriguez M. A. and Dabdub D. *Journal of Geophysical Research* **108,** (D15), 4443, doi: 10.1029/2002JD003281 (2003)

J28 Comparison of photochemical mechanisms for air quality modeling. Jimenez P., Baldasano J. M. and Dabdub D. *Atmospheric Environment* **37,** (2003) 4179–4194. doi: 10.1016/S1352-2310(03)00567-3

J29 Modeling the oxidative capacity of the atmosphere of the South Coast Air Basin of California: 1. Ozone formation metrics. Griffin R. J., Revelle M. K. and Dabdub D. *Environmental Science & Technology* **38,** (2004) 746–752. doi: 10.1021/es0341283

J30 IMAGES-SCAPE2: A modeling study of size and chemically resolved aerosol thermodynamics in a global chemical transport model. Rodriguez M. A. and Dabdub D. *Journal of Geophysical Research* **109,** D02203, doi: 10.1029/ 2003JD003639 (2004)

J31 Comment on "Instantaneous secondary organic aerosol yields and their comparison with overall aerosol yields for aromatic and biogenic hydrocarbons" by Weimin Jiang. Knipping E. M., Griffin R. J., Bowman F. M., Pun B., Seigneur C., Dabdub D. and Seinfeld J. H. *Atmospheric Environment* **38,** (2004) 2759–2761 doi: 10.1016/j.atmosenv.2004.02.017

J32 Multi-scale simulations of tropospheric chemistry in the eastern Pacific and US west coast during Spring 2002. Tang Y., Carmichael G. R., Horowitz L. W., Uno I., Woo J. H., Streets D. G., Dabdub D., Kurata G., Sandu A., Allan J., Atlas E., Flocke F., Huey L. G., Jakoubek R. O., Millet D. B., Quinn P. K., Roberts J. M., Worsnop D. R., Goldstein A., Donnelly S., Schauffler S., Stroud V., Johnson K., Avery M. A., Singh H. B. and Apel E. C. *Journal of Geophysical Research* **109,** D23S11, doi: 10.1029/2004JD004513 (2004)

J33 Three-dimensional simulations of inorganic aerosol distributions in east Asia during Spring 2001. Tang Y., Carmichael G. R., Seinfeld J. H., Dabdub D., Weber R. J., Huebert B., Clarke A. D., Guazzotti S. A., Sodeman D. A., Prather K. A., Uno I., Woo J. H., Yienger J. J., Streets D. G., Quinn P. K., Johnson J. E., Song C. H., Grassian V. H., Sandu A., Talbot R. W. and Dibb J. E. *Journal of Geophysical Research* **109,** D19S23, doi: 10.1029/2003JD004201 (2004)

J34 Formation of molecular bromine from the reaction of ozone with deliquesced NaBr aerosol: evidence for interface chemistry. Hunt S. W., Roeselová M., Wang W., Wingen L. M., Knipping E. M., Tobias D. J., Dabdub D. and Finlayson-Pitts B. J. *Journal of Physical Chemistry A* **108,** (2004) 11559–11572. doi: 10.1021/jp0467346

J35 Calculation of incremental secondary organic aerosol reactivity. Carreras-Sospedra M., Griffin R. J. and Dabdub D. *Environmental Science & Technology* **39,** (2005) 1724–1730. doi: 10.1021/es0495359

J36 Development and initial evaluation of a dynamic species-resolved model for gas phase chemistry and size-resolved gas/particle partitioning associated with secondary organic aerosol formation. Griffin R. J., Dabdub D. and Seinfeld J. H. *Journal of Geophysical Research* 110, D05304, doi: 10.1029/2004JD005219 (2005)

J37 Comment on "Semiempirical model for organic aerosol growth by acid-catalyzed heterogeneous reactions of carbonyls". Barsanti K. C., Pankow J. F., Dabdub D., Griffin R. J. and Seinfeld J. H. *Environmental Science & Technology* **39,** (2005) 8108–8109. doi: 10.1021/es0512529

J38 Gas-phase molecular halogen formation from NaCl and NaBr aerosols: when are interface reactions important? Thomas J. L., Jimenez-Aranda A., Finlayson-Pitts B. J. and Dabdub D. *Journal of Physical Chemistry A* **110,** (2006) 1859–1867. doi: 10.1021/jp054911c

J39 Simulation and analysis of secondary organic aerosol dynamics in the South Coast Air Basin of California. Vutukuru S., Griffin R. J. and Dabdub D. *Journal of Geophysical Research* **111,** D10S12, doi: 10.1029/2005JD006139 (2006)

J40 Air quality modeling in the South Coast Air Basin of California: What do numbers really mean? Carreras-Sospedra M., Dabdub D., Rodriguez M. and Brouwer J. *Journal of the Air & Waste Management Association* **56,** (2006) 1184–1195. doi: 10.1016/j.atmosenv.2006.03.054

J41 Air quality impacts of distributed power generation in the South Coast Air Basin of California 1: scenario development and modeling analysis. Rodriguez M., Carreras-Sospedra M.,

Medrano M., Brouwer J., Samuelsen G. S. and Dabdub D. *Atmospheric Environment* **40,** (2006) 5508–5521.

J42 Enhanced photolysis in aerosols: evidence for important surface effects. Nissenson P., Knox C. J. H., Finlayson-Pitts B. J., Phillips L. J. and Dabdub D. *Physical Chemistry Chemical Physics* **8,** (2006) 4700–4710. doi: 10.1039/b609219e

J43 Contribution of gas phase oxidation of volatile organic compounds to atmospheric carbon monoxide levels in two areas of the United States. Griffin R. J., Chen J., Carmody K., Vutukuru S. and Dabdub D. *Journal of Geophysical Research* **112,** D10S17, doi: 10.1029/2006JD007602 (2007)

J44 Addition. Gas-phase molecular halogen formation from NaCl and NaBr aerosols: When are interface reactions important? Thomas J. L., Jimenez-Aranda A., Finlayson-Pitts B. J. and Dabdub D. *Journal of Physical Chemistry A* **111,** (2007) 7243–7244. doi: 10.1021/jp073927v

J45 Air quality impacts of distributed power generation in the South Coast Air Basin of California 2: Model uncertainty and sensitivity analysis. Rodriguez M. A., Brouwer J., Samuelsen G. S. and Dabdub D. *Atmospheric Environment* **41,** (2007) 5618–5635. doi: 10.1016/j.atmosenv.2007.02.049

J46 Rethinking ozone production. Wennberg P. O. and Dabdub D. *Science* **319,** (2008) 1624–1625. doi: 10.1126/science.1155747

J47 Influence of sea-salt activated chlorine and surface-mediated renoxification on the weekend effect in the South Coast Air Basin of California. Cohan A., Chang W., Carreras-Sospedra M. and Dabdub D., *Atmospheric Environment* **42,** (2008) 3115–3129. doi: 10.1016/j.atmosenv.2007.11.046

J48 Modeling the effects of ship emissions on coastal air quality: a case study of Southern California. Vutukuru S. and Dabdub D. *Atmospheric Environment* **42,** (2008) 3751–3764. doi: 10.1016/j.atmosenv.2007.12.073

J49 Air quality impacts of distributed energy resources implemented in the Northeastern United States. Carreras-Sospedra M., Dabdub D., Brouwer J., Knipping E., Kumar N., Darrow K., Hampson A. and Hedman B. *Journal of the Air & Waste Management Association* **58,** (2008) 902–912. doi: 10.3155/1047-3289.58.7.902

J50 A methodology for developing distributed generation scenarios in urban areas using geographical information systems. Medrano M., Brouwer J., Carreras-Sospedra M., Rodriguez M. A., Dabdub D. and Samuelsen G. S. *International Journal of Energy Technology and Policy* **6,** (2008) 413–434. doi: 10.1504/IJETP.2008.019958

J51 Sensitivity and uncertainty analysis of the mechanism of gas-phase chlorine production from NaCl aerosols in the MAGIC model. Nissenson P. M., Thomas J. L., Finlayson-Pitts B. J. and Dabdub D. *Atmospheric Environment* **42,** (2008) 6934–6941. doi: 10.1016/j.atmosenv.2008.04.041

J52 Influence of the public transportation system on the air quality of a major urban center. A case study: Milan, Italy. Meinardi S., Nissenson P., Barletta B., Dabdub D., Rowland F. S. and Blake D. R. *Atmospheric Environment* **42,** (2008) 7915–7923. doi: 10.1016/j.atmosenv.2008.07.046

J53 Probing the sensitivity of gaseous Br2 production from the oxidation of aqueous bromide-containing aerosols and atmospheric implications. Nissenson P., Packwood D. M., Hunt S. H., Finlayson-Pitts B. J. and Dabdub D. *Atmospheric Environment* **43,** (2009) 3951–3962. doi: 10.1016/j.atmosenv.2009.04.006

J54 Chlorine activation indoors and outdoors via surface-mediated reactions of nitrogen oxides with hydrogen chloride. Raff J. D., Njegic B., Chang W. L., Gordon M. S., Dabdub D., Gerber R. B. and Finlayson-Pitts B. J. *Proceedings of the National Academy of Sciences of the United States of America* **106,** (2009) 13647–13654. doi: 10.1073/pnas.0904195106

J55 Potential for atmospheric driven lead paint degradation in the South Coast Air Basin of California. Cohan A. J., Edwards R. D., Kleinman M. T. and Dabdub D. *Environmental Science & Technology* **43,** (2009) 8881–8887. doi: 10.1021/es901360j

J56 Determining air quality and greenhouse gas impacts of hydrogen infrastructure and fuel cell vehicles. Stephens-Romero S., Carreras-Sospedra M., Brouwer J., Dabdub D. and Samuelsen S. *Environmental Science & Technology* **43,** (2009) 9022–9029. doi: 10.1021/es901515y

J57 Mass conservative, positive definite integrator for atmospheric chemical dynamics. Nguyen K., Caboussat A. and Dabdub D. *Atmospheric Environment* **43,** (2009) 6287–6295. doi: 10.1016/j.atmosenv.2009.09.032

J58 Impacts of electronically photo-excited NO2 on air pollution in the South Coast Air Basin of California. Ensberg J. J., Carreras-Sospedra M. and Dabdub D. *Atmospheric Chemistry and Physics* **10,** (2010) 1171–1181. doi: 10.5194/acp-10-1171-2010

J59 Impact of the Knudsen number and mass transfer expression on multi-phase kinetic modeling. Pokkunuri P., Nissenson P. and Dabdub D. *Atmospheric Environment* **44,** (2010) 153–163. doi: 10.1016/j.atmosenv.2009.10.014

J60 A new aerosol flow system for photochemical and thermal studies of tropospheric aerosols. Ezell M. J., Johnson S. N., Yu Y., Perraud V., Bruns E. A., Alexander M. L., Zelenyuk A., Dabdub D. and Finlayson-Pitts B. J. *Aerosol Science & Technology* **44,** (2010) 329–339, doi: 10.1080/02786821003639700.

J61 Partitioning phase preference for secondary organic aerosol in an urban atmosphere. Chang W. L., Griffin R. J. and Dabdub D. *Proceedings of the National Academy of Sciences of the United States of America* **107,** (2010) 6705–6710, doi: 10.1073/pnas. 0911244107.

J62 Central power generation versus distributed generation—an air quality assessment in the South Coast Air Basin of California. Carreras-Sospedra M., Vutukuru S., Brouwer J. and Dabdub D. *Atmospheric Environment* **44,** (2010) 3215–3223. doi: 10.1016/j.atmosenv.2010.05.017

J63 A full year evaluation of the CALIOPE-EU air quality modeling system over Europe for 2004. Pay M. T., Piot M., Jorba O., Gassó S., Gonçalves M., Basart S., Dabdub D., Jiménez-Guerrero P. and Baldasano J. M. *Atmospheric Environment* **44,** (2010) 3322–3342. doi: 10.1016/j.atmosenv.2010.05.040

J64 Evidence of the water-cage effect on the photolysis of NO_3^- and $FeOH_2^+$. Implications of this effect and of H_2O_2 surface accumulation on photochemistry at the air-water interface of atmospheric droplets. Nissenson P., Dabdub D., Das R., Maurino V., Minero C. and Vione D. *Atmospheric Environment* **44,** (2010) 4859–4866. doi: 10.1016/j.atmosenv.2010.08.035

J65 Heterogeneous and homogeneous atmospheric chemistry, ambient measurements and model calculations of N_2O_5: A review. Chang W. L., Bhave P. V., Brown S. S., Riemer N., Stutz J. and Dabdub D. *Aerosol Science & Technology* **45,** (2011) 665–695. doi: 10.1080/02786826.2010.551672

J66 HFC-152a and HFC-134a emission estimates and characterization of CFCs, CFC replacements, and other halogenated solvents measured during the 2008 ARCTAS campaign (CARB phase) over the South Coast Air Basin of California. Barletta B., Nissenson P., Meinardi S., Dabdub D., Rowland F. S., VanCuren R. A., Pederson J., Diskin G. S. and Blake D. R. *Atmospheric Chemistry and Physics* **11,** (2011) 2655–2669. doi: 10.5194/acp-11-2655-2011

J67 High-resolution pollutant transport in the San Pedro Bay of California. Cohan A., Wu J. and Dabdub D. *Atmospheric Pollution Research* **2,** (2011) 237–246. doi: 10.5094/APR.2011.030

J68 Projecting full build-out environmental impacts and roll-out strategies associated with viable hydrogen fueling infrastructure strategies. Stephens-Romero S. D., Brown T. M., Carreras-Sospedra M., Kang J. E., Brouwer J., Dabdub D., Recker W. W. and Samuelsen G. S. *International Journal of Hydrogen Energy* **36,** (2011) 14309–14323. doi: 10.1016/j.ijhydene.2011.08.005

J69 Future impacts of distributed power generation on ambient ozone and particulate matter concentrations in the San Joaquin Valley of California. Vutukuru S., Carreras-Sospedra M., Brouwer J. and Dabdub D. *Journal of the Air & Waste Management Association* **61,** (2011) 1319–1333, doi: 10.1080/10473289.2011.603990.

J70 Nonequilibrium atmospheric secondary organic aerosol formation and growth. Perraud V., Bruns E. A., Ezell M. J., Johnson S. N., Yu Y., Alexander M. L., Zelenyuk A., Imre D., Chang W. L., Dabdub D., Pankow J. F. and Finlayson-Pitts B. J. *Proceedings of the National Academy of Sciences of the United States of America* **109,** (2012) 2836–2841. doi: 10.1073/pnas.1119909109

J71 Impact of HONO sources on the performance of mesoscale air quality models. Gon-çalves M., Dabdub D., Chang W. L., Jorba O. and Baldasano J. M. *Atmospheric Environment* **54,** (2012) 168–176. doi: 10.1016/j.atmosenv.2012.02.079

J72 Potential significance of photoexcited NO_2 on global air quality with the NMMB/ BSC chemical transport model. Jorba O., Dabdub D., Blaszczak-Boxe C., Pérez C., Janjic Z., Baldasano J. M., Spada M., Badia A. and Gonçalves M. *Journal of Geophysical Research* **117,** D13301, doi: 10.1029/2012JD017730 (2012)

J73 Images reveal that atmospheric particles can undergo liquid-liquid phase separations. You Y., Renbaum-Wolff L., Carreras-Sospedra M., Hanna S. J., Hiranuma N., Kamal S., Smith M. L., Zhang X., Weber R. J., Shilling J. E., Dabdub D., Martin S. T. and Bertram A. K. *Proceedings of the National Academy of Sciences of the United States of America* **109,** (2012) 13188–13193. doi: 10.1073/pnas.1206414109

J74 Emission estimates of HCFCs and HFCs in California from the 2010 CalNex study. Barletta B., Carreras-Sospedra M., Cohan A., Nissenson P., Dabdub D., Meinardi S., Atlas E., Lueb R., Holloway J. S., Ryerson T. B., Pederson J., VanCuren R. A. and Blake D. R. *Journal of Geophysical Research* **118,** 4, doi: 10.1002/jgrd.50209 (2013)

J75 Secondary organic aerosol formation from naphthalene roadway emissions in the South Coast Air Basin of California. Cohan A., Eiguren-Fernandez A., Miguel A. H. and Dabdub D. *International Journal of Environment and Pollution* **52,** (2013) 206–224. doi: 10.1504/IJEP.2013.058461

J76 Emission factor estimation in regional air quality studies of residential natural gas fuel interchangeability. Martinez A. S., Jani A. and Dabdub D. *Fuel* **119,** (2014) 129–140. doi: 10.1016/j.fuel.2013.11.018

J77 Rapid formation of molecular bromine from deliquesced NaBr aerosol in the presence of ozone and UV light. Nissenson P., Wingen L. M., Hunt S. W., Finlayson-Pitts B. J. and Dabdub D. *Atmospheric Environment* **89,** (2014) 491–506. doi: 10.1016/j.atmosenv.2014.02.056

J78 Air quality impacts of liquefied natural gas in the South Coast Air Basin of California. Carreras-Sospedra M., Lunden M. M., Brouwer J., Singer B. C. and Dabdub D. *Journal of Natural Gas Science and Engineering* **21,** (2014) 680–690. doi: 10.1016/j.jngse.2014.09.025

J79 The future of airborne sulfur containing particles in the absence of fossil fuel sulfur dioxide emissions. Perraud V., Horne J. R., Martinez A. S., Kalinowski J., Meinardi S., Dawson M. L., Wingen L. M., Dabdub D., Blake D. R., Gerber R. B. and Finlayson-Pitts B. J. *Proceedings of the National Academy of Sciences of the United States of America* **112,** (2015) 13514–13519. doi: 10.1073/pnas.1510743112

J80 Assessment of the emissions and air quality impacts of biomass and biogas use in California. Carreras-Sospedra M., Williams R. and Dabdub D. *Journal of the Air & Waste Management Association* **66,** (2016) 134–150. doi: 10.1080/10962247.2015.1087892

J81 Development of aroCACM/MPMPO 1.0: A model to simulate secondary organic aerosol from aromatic precursors in regional models. Dawson M. L., Xu J., Griffin R. J. and Dabdub D. *Geosientific Model Development* **9,** (2016) 2143–2151. doi:10.5194/gmd-9-2143-2016

J82 Episodic air quality impacts of plug-in electric vehicle. Razeghi G., Carreras-Sospedra M., Brown T., Brouwer J., Dabdub D. and Samuelsen G. S. *Atmospheric Environment* **137** (2016) 90–100 doi: 10.1016/j.atmosenv.2016.04.031

J83 Air quality impacts of fuel cell electric hydrogen vehicles with high levels of renewable power generation. Mac Kinnon M., Shaffer B., Carreras-Sospedra M., Dabdub D., Samuelsen G. S. and Brouwer J. *International Journal of Hydrogen Energy.* Submitted.

J84 Impact of global climate change on ozone, particulate matter, and secondary organic aerosol concentrations in California: a model perturbation analysis. Horne J. R. and Dabdub D. *Atmospheric Environment*. Submitted.

J85 Impacts of natural gas composition on emissions and air quality in California. Carreras-Sospedra M., Boado E. S. and Dabdub D. *Journal of Natural Gas Science & Engineering*. Submitted.

J86 Gas-phase chemistry in the online multiscale NMMB/BSC Chemical Transport Model: Description and evaluation at global scale. Badia A., Jorba O., Voulgarakis A., Dabdub D., Pérez C., Hilboll A., Gonçalves M. and Janjic Z. *Geosientific Model Development*. Submitted.

Peer-Reviewed Proceedings:

C1 Sensitivity of diagnostic wind field to the size of the estimation domain. Ghim Y. S., Kim J. Y., Kim Y. P. and Dabdub D. The 11th World Clean Air and Environment Congress. Durban, South Africa. September 13-18, 1998. Paper number 10D-1.

C2 Size-resolved and chemically resolved aerosol-chemical transport model of the global troposphere. Rodriguez M. and Dabdub D. Symposium of Atmospheric Chemistry. Issues in the 21st century. American Meteorological Society. Long Beach, CA. January, 2000. Paper 1.2

C3 Numerical solution of the aerosol condensation/evaporation equation. Nguyen K. and Dabdub D. Proceedings of the Computational Science – ICCS 2001 International Conference. San Francisco, CA. Vassil N. Alexandrov (ed.), Springer-Verlag May, 2001.

C4 Urban air quality impacts of distributed generation. Medrano M., Brouwer J., Samuelsen G. S., Carreras M. and Dabdub D. Proceedings of ASME Turbo Expo 2003. Power for Land, Sea, and Air. Atlanta, GA. June, 2003. GT2003-38309.

C5 Modeling air quality impacts of distributed generation in the South Coast Air Basin of California. Dabdub D., Carreras M., Medrano M., Brouwer J. and Samuelsen G. S. Proceedings of the European Aerosol Conference 2003. Madrid, Spain. September, 2003.

C6 Urban air quality impacts of distributed generation. Carreras-Sospedra M., Medrano M., Samuelsen G. S., Brouwer J., Rodriguez M. and Dabdub D. Proceedings of ASME Turbo Expo 2004. Power for Land, Sea, and Air. Vienna, Austria. June, 2004. GT2004-54252.

C7 Determining relative air quality impacts of future personal vehicle options. Carreras-Sospedra M., Dabdub D., Brouwer J. and Samuelsen G. S. Proceedings of the 9th International Colloquium on Environmentally Preferred Advanced Power Generation. Newport Beach, CA. February, 2009.

C8 Effects of climate change and greenhouse gas mitigation strategies on air quality. Carreras-Sospedra M., Mac Kinnon M., Brouwer J. and Dabdub D. 10th Annual Community Modeling and Analysis System Conference. Chapel Hill, NC. October, 2011.

C9 Evaluating the emerging regional air quality and greenhouse gas impacts of U.S. energy sectors. Mac Kinnon M. A., Carreras-Sospedra M., Brouwer J. and Dabdub D. Air and Waste Management Associations 107th Annual Conference & Exhibition. Long Beach, CA. June, 2014.

C10 Addressing air quality issues for biopower. Carreras-Sospedra M., Brouwer J., Dabdub D. and William R. B. Air and Waste Management Associations 107th Annual Conference & Exhibition. Long Beach, CA. June, 2014.

C11 Changes in air quality from fuel cell electric vehicles and electrolysis-produced hydrogen in tandem with high levels of renewable power. Mac Kinnon M. A., Brouwer J., Shaffer B., Carreras-Sospedra M. and Dabdub D. U.S. EPAs 2015 International Emission Inventory Conference "Air Quality Challenges: Tackling the Changing Face of Emissions" San Diego, CA. April, 2015.

Other Proceedings:

W1 State of the science of computer models for urban air pollution dynamics. Carreras-Sospedra M. and Dabdub D. Proceedings of the U.S.–Iran Symposium on Air Pollution in Megacities. American Association for the Advancement of Science. Irvine, CA. September, 2013.

Magazine Articles:

M1 Simulation of secondary organic aerosols in regional air quality models—Research needs Knipping E. M. and Dabdub D. *EM Magazine.* Air & Waste Management Association. September, (2012) 10–12.

Reports:

R1 Continued development of a photochemical model and application to the Southern California Air Quality Study (SCAQS) intensive monitoring periods: Phase I. Harley R. A., Russell A. G., McRae G. J., McNair L. A., Winner D. A., Odman M. T., Dabdub D., Cass G. R. and Seinfeld J. H. Final Report to the Coordinating Research Council (1992).

R2 Continued development of a photochemical model and application to the Southern California Air Quality Study (SCAQS) intensive monitoring periods: Phase II Model Application. McNair L. A., Harley R. A., Russell A. G., Cass G. R., Odman M. T., McRae G. J., Seinfeld J. H., Winner D. A., and Dabdub D. Final Report to the Coordinating Research Council (1992).

R3 Impact of altering NO/NO2 splits in NOx emissions of diesel sources. Knipping E. M. and Dabdub D. Final report to the California Air Resources Board and the California Environmental Protection Agency. ARB Contract 01-331 (2002).

R4 Chlorine emissions from activated sea-salt and their potential impact on ozone. Knipping E. M. and Dabdub D. Final report to the California Air Resources Board and the California Environmental Protection Agency. ARB Contract 00-324 (2002).

R5 Heterogeneous NOx chemistry in polluted urban atmospheres: implications for the formation of particles and ozone and control strategy development. Finlayson-Pitts B. J., Wingen L. M., Dubowski Y., Ramazan K. A., Rivera-Figueroa A. M., Sumner A. L., Syomin D., Dabdub D., Jimenez-Aranda A. and Knipping E. M. Final report to the California Air Resources Board and the California Environmental Protection Agency. ARB Contract 00-323 (2004).

R6 Air quality impacts of distributed generation. Samuelsen G. S., Dabdub D., Brouwer J., Medrano M., Rodriguez M. and Carreras-Sospedra M. Final report to the California Energy Commission—Public Interest Research Program. CEC-500-2005-O69-F (2005).

R7 Air quality impacts of ship emissions in the South Coast Air Basin of California. Dabdub D. and Vutukuru S. Final report to the California Air Resources Board. ARB Contract 04-752 (2008).

R8 Determining relative air quality impacts of various personal vehicle options in 2050. Brouwer J., Dabdub D., Samuelsen G. S. and Carreras-Sospedra M., Report to Toyota Motor Sales U.S.A. Inc. (2008).

R9 How new chemistry findings affect our understanding of the weekend effect — A modeling study. Dabdub D., Carreras-Sospedra M., Chang W. and Cohan A. Final report to the California Air Resources Board. ARB Contract 04-333 (2008).

R10 Air quality impacts of distributed generation in the South Coast Air Basin and the San Joaquin Valley. Samuelsen G. S., Dabdub D., Brouwer J., Carreras-Sospedra M. and Vutukuru S. Final report to the California Energy Commission—Public Interest Energy Research Program. CEC-500-2009-070 (2009).

R11 Air quality impacts of liquefied natural gas in the South Coast Air Basin of California. Carreras-Sospedra M., Brouwer J., Dabdub D., Lunden M. and Singer B. Final report to the California Energy Commission—Public Interest Energy Research Program. CEC-500-2011-041 (2011).

R12 Impacts of natural gas composition on air quality an assessment using TEMPLES model - Phase 1. Carreras-Sospedra M., Martinez A. S. and Dabdub D. Final report to the California Air Resources Board. ARB Contract 11-416 (2014).

R13 Program on technology innovation: Literature review of the potential air quality impacts of fossil-based distributed generation. Carreras-Sospedra M., Dabdub D., Knipping E. M. and Shaw S. L. EPRI, Palo Alto, CA. 3002005008 (2015).

R14 Assessment of the emissions and energy impacts of biomass and biogas use in California. Carreras-Sospedra M., Mac Kinnon M., Williams R. and Dabdub D. Final report to the California Air Resources Board. ARB Contract 11-307 (2015).

R15 Air quality and greenhouse gas emissions impact assessment from biomass and biogas derived transportation fuels and electricity and heat generation. Samuelsen S., Dabdub D., Brouwer J., Cervantes A., Shaffer B., Carreras-Sospedra M., Jenkins B., Williams R. and Parker N. Final report to the California Energy Commission—Energy Research and Development Division. CEC-500-11-028 (2015).

R16 Impacts of natural gas composition on air quality an assessment using TEMPLES model - Phase 2. Carreras-Sospedra M., Boado E. S. and Dabdub D. Final report to the California Air Resources Board. ARB Contract 11-416 (2016).

Abstracts:

A1 PSE for airshed models using the $3D + T + M^k$ archetype. Air and Waste Management Association. Computing in Environmental Management Conference. December, 1996.

A2 Size and chemically resolved model of atmospheric aerosol dynamics. 16^{th} Annual American Association for Aerosol Research Conference. Denver, Colorado. October 15, 1997.

A3 New spline techniques used in the solution of hyperbolic systems to describe atmospheric transport. UC Toxic Substances Research & Teaching Program. 11^{th} Annual Research Symposium. Berkeley, CA. April 25, 1998.

A4 Modeling secondary organic aerosol formation in the South Coast Air Basin. 17^{th} Annual American Association for Aerosol Research Conference. Cincinnati, Ohio. Jun 24, 1998.

A5 Development of a comprehensive coupled gas-phase and droplet size resolved aqueous phase chemistry model. 1998 Fall meeting of the American Geophysical Union. San Francisco, CA. December 8, 1998.

A6 Mathematical techniques used to model reactive transport in the atmosphere. Fifth SIAM Conference on Mathematical and Computational Issues in the Geosciences. Society for Industrial and Applied Mathematics. San Antonio, TX. March 26, 1999.

A7 The importance of reactions in and on water in tropospheric sea salt chemistry. American Geophysical Union. December, 1999.

A8 Modeling studies of halogen activation due to the heterogeneous chemistry of marine aerosols. 2000 Annual Meeting. American Institute of Chemical Engineering. Los Angeles, CA. November, 2000.

A9 Modeling studies of halogen activation due to the heterogeneous chemistry of marine aerosols. 19^{th} Annual Conference of the American Association for Aerosol Research. St. Louis, MO. November, 2000.

A10 Effects of NO_x and VOC on the formation of urban aerosols. 19^{th} Annual Conference of the American Association for Aerosol Research. St. Louis, MO. November, 2000.

A11 Thermodynamic simulation of secondary organic aerosol using a three-dimensional air quality model for Los Angeles. 19^{th} Annual Conference of the American Association for Aerosol Research. St. Louis, MO. November, 2000.

A12 Evaluation of the magnitude of VOC oxidation by chlorine atoms in a coastal urban airshed. 20^{th} Annual Conference of the American Association for Aerosol Research. Portland, OR. October, 2001.

A13 Size and chemically resolved aerosol CTM of the global troposphere. 21^{st} Annual Conference of the American Association for Aerosol Research. Charlotte, NC. October, 2002.

A14 Modeling study of diesel emission controls. 21^{st} Annual Conference of the American Association for Aerosol Research. Charlotte, NC. October, 2002.

A15 Sulfate-Nitrate-Ammonium-Water system study of the global troposphere with a size and chemically resolved aerosol-CTM. The Fifth Conference on Atmospheric Chemistry. Long Beach, CA. February, 2003.

A16 Comparison of photochemical mechanisms for air quality modeling. 26th NATO / CCMS International Technical Meeting on Air Pollution Modeling and its Application. Istanbul, Turkey. May, 2003.

A17 Next generation model for predicting atmospheric gas-to-particle conversion in inorganic systems. 22nd Annual Conference of the American Association for Aerosol Research. Anaheim, CA. October, 2003.

A18 IMAGES-SCAPE2: A modeling study of tropospheric size and chemically resolved aerosol thermodynamics in a global chemical transport model. 22nd Annual Conference of the American Association for Aerosol Research. Anaheim, CA. October, 2003.

A19 Reactions of Gas Phase OH and O3 with NaBr: Evidence for an Interface Mechanism. 22nd Annual Conference of the American Association for Aerosol Research. Anaheim, CA. October, 2003.

A20 Impact of renoxification reactions on aerosol concentrations. 23rd Annual Conference of the American Association for Aerosol Research. Atlanta, GA. October, 2004.

A21 Air quality impacts of distributed generation: model uncertainty and sensitivity analysis of PM2.5 aerosol. 23rd Annual Conference of the American Association for Aerosol Research. Atlanta, GA. October, 2004.

A22 The next generation secondary organic aerosol models: dynamics of SOA in Southern California. Particulate Matter Supersites Program and Related Studies. Atlanta, GA. February, 2005.

A23 The roadmap for MADRID: Model development for the next release and beyond. 4th Annual CMAS Models-3 Users' Conference. Chapel Hill, NC. September, 2005.

A24 Enhanced photolysis in the aerosol phase relative to the bulk-liquid phase. 24th Annual Conference of the American Association for Aerosol Research. Austin, TX. October, 2005.

A25 Gas-phase molecular halogen production from sea-salt aerosol particles via interface reactions: A modeling study. 24th Annual Conference of the American Association for Aerosol Research. Austin, TX. October, 2005.

A26 Regional scale modeling of secondary organic aerosol dynamics. 4th Asian Aerosol Conference. Mumbai, India. December, 2005.

A27 Impacts of distributed power generation on air quality in the South Coast Air Basin of California. CEA-CREST Seventh Annual Environmental Science Conference. California State University, Los Angeles. Los Angeles, CA. May 5, 2006.

A28 Influence of renoxification reactions on ozone and particulate matter levels. 2006 International Aerosol Conference. St. Paul, MN. September, 2006.

A29 A fully-dynamic approach to model secondary organic aerosol formation. 2006 International Aerosol Conference. St. Paul, MN. September, 2006.

A30 Sensitivity analysis of the MAGIC aerosol model using Latin hypercube sampling. Third Annual Workshop on Chemistry at Interfaces. Christchurch, New Zealand. December, 2006.

A31 Air quality impacts of various alternative vehicle use in the South Coast Air Basin. 10th Annual EUEC Conference & Expo on Clean Air, Mercury, Global Warming & Renewable Energy. Tucson, AZ. January, 2007.

A32 Air quality impacts of distributed generation of electricity in Southern California. California: Prosperity through technology. Energy and the Environment. 6th Annual Industry Research Symposium. Irvine, CA. May, 2007.

A33 Air quality impacts of emissions from ships. California: Prosperity through technology. Energy and the Environment. 6th Annual Industry Research Symposium. Irvine, CA. May, 2007.

A34 Modeling the ozone weekend effect in the South Coast Air Basin of California, California: Prosperity through technology. Energy and the Environment. 6th Annual Industry Research Symposium. Irvine, CA. May, 2007.

A35 First-order sensitivity and uncertainty analysis of the MAGIC model using NaCl aerosols. 26th Annual Conference of the American Association for Aerosol Research. Reno, NV. September, 2007.

A36 Impact of sea-salt aerosol on the weekend effect. 26th Annual Conference of the American Association for Aerosol Research. Reno, NV. September, 2007.

A37 Impact of ship emissions on urban air quality: a modeling study of Southern California. 26th Annual Conference of the American Association for Aerosol Research. Reno, NV. September, 2007.

A38 Modeling and numerical issues related to N2O5 dynamics. International Aerosol Modeling Algorithms Conference. Davis, California. December 5, 2007.

A39 Parallel computation in atmospheric modeling: past and future. International Aerosol Modeling Algorithms Conference. Davis, California. December 5, 2007.

A40 Understanding the important mechanisms of Br2 production from NaBr aerosols. 27th Annual Conference of the American Association for Aerosol Research. Orlando, FL. October, 2008.

A41 Surface reactions of oxides of nitrogen in the atmosphere. 237th National Meeting of the American Chemical Society. Salt Lake City, UT. March, 2009.

A42 Unraveling of a new mechanism of atmospheric chemistry reactions: Formation of ClNO. 237th National Meeting of the American Chemical Society. Salt Lake City, UT. March, 2009.

A43 Development of an integrated chemical weather prediction system for environmental applications at meso to global scales: NMMB/BSC-CHEM. European Conference on Applications of Meteorology. Toulouse, France. September, 2009.

A44 Formation of molecular bromine from deliquesced NaBr aerosol in the presence of ozone and UV light. 28th Annual Conference of the American Association for Aerosol Research. Minneapolis, Minnesota. October, 2009.

A45 Distribution of halogenated species over the Los Angeles basin measured during the 2008 ARCTAS campaign (CARB phase). A case study: HFC-152a. American Geophysical Union. 2009 Fall Meeting San Francisco, CA. December, 2009.

A46 Impacts of electronically photo-excited NO2 on air pollution in the South Coast Air Basin of California. 27th Informal Symposium on Kinetic and Photochemical Processes in the Atmosphere. San Diego, CA. February, 2010.

A47 A new aerosol flow system for photochemical and thermal studies of tropospheric aerosols. First Science Team Meeting of the Atmospheric System Research Program. Bethesda, MD. March, 2010.

A48 High-resolution pollutant transport in the San Pedro Bay. Association for Aerosol Research 2010 Specialty Conference San Diego, CA. March, 2010.

A49 Chemical composition of particulate matter in Spain: modelling evaluation of the CALIOPE system for 2004. European Geosciences Union. General Assembly 2010. Vienna, Austria. May, 2010.

A50 Status of development and firsts results at global scale of NMMB/BSC-CHEM: an online multiscale air quality model. European Geosciences Union. General Assembly 2010. Vienna, Austria. May, 2010.

A51 Heterogeneous and homogeneous atmospheric chemistry of N2O5: A review. 29th Annual Conference of the American Association for Aerosol Research. Portland, Oregon. October, 2010.

A52 Partitioning phase preference for secondary organic aerosol in an urban atmosphere. 29th Annual Conference of the American Association for Aerosol Research. Portland, Oregon. October, 2010.

A53 Impact of HONO sources in the air quality levels of the Iberian Peninsula. 23rd GLOREAM-EURASAP Workshop on Tropospheric Chemical Transport Modelling. Copenhagen, Denmark. January, 2011.

A54 Assessing the impact of NO2 photo-excitation at global scales. European Geosciences Union 2011. Vienna, Austria. April, 2011.

A55 The NMMB/BSC-CHEM online chemical weather prediction system: current status of development and feedback interactions. European Geosciences Union 2011. Vienna, Austria. April, 2011.

A56 Distribution of chlorofluorocarbons (CFCs) and their replacements measured over the Southern California Air Basin (SoCAB) and the Central Valley during the 2010 CalNex-2010 study. CalNex Data Analysis Workshop. Sacramento, California. May, 2011.

A57 Kinetics vs. thermodynamics in the formation of SOA: implications from studies of α-pinene oxidation. Gordon Conference. West Dover, VT. July, 2011.

A58 Chemical and physical modeling of aerosols. 2^{nd} Conference of the Brazilian Association for Aerosol Research. Rio de Janeiro, Brazil. August, 2011.

A59 High-resolution atmospheric modeling and health impacts in Tula-Tepeji—an industrial region in Mexico. 2^{nd} Conference of the Brazilian Association for Aerosol Research. Rio de Janeiro, Brazil. August, 2011.

A60 The NMMB/BSC-CTM: a multiscale online chemical weather prediction system. 14^{th} Conference on Harmonisation within Atmospheric Dispersion Modelling for Regulatory Purposes. Kos, Greece. October, 2011.

A61 Probing the formation of molecular bromine from deliquesced NaBr aerosol in the presence of ozone and UV light. 30^{th} Annual Conference of the American Association for Aerosol Research. Orlando, Florida. October, 2011.

A62 Probing the model-measurement discrepancy in SOA formation: A case study of α-pinene oxidation by NO_3 radicals. 30^{th} Annual Conference of the American Association for Aerosol Research. Orlando, Florida. October, 2011.

A63 Summary of EPRI–A&WMA workshop on future air quality model development needs. 10^{th} Annual Community Modeling and Analysis System Conference. Chapel Hill, NC. October, 2011.

A64 A kinetics approach to SOA growth: implications from studies of α-pinene oxidation. American Geophysical Union Fall Meeting 2011. San Francisco, CA. December, 2011.

A65 Multiscale air quality with the NMMB/BSC Chemical Transport Model. 32^{nd} International Technical Meeting on Air Pollution Modeling and its Application. Utrecht, The Netherlands. May, 2012.

A66 Liquid-liquid phase separations in atmospheric particles. 244^{th} American Chemical Society National Meeting. Philadelphia, PA. August, 2012.

A67 Images reveal that atmospheric particles can undergo liquid-liquid phase separations. 29^{th} Annual Conference of the American Association for Aerosol Research. Portland, OR. October, 2012.

A68 On-road gasoline and diesel engine exhaust naphthalene emissions: contributions to regional SOA formation in Southern California. 29^{th} Annual Conference of the American Association for Aerosol Research. Portland, OR. October, 2012.

A69 New particle formation and growth from the reaction of methanesulfonic acid with amines and the ozonolysis of terpenes. U.S. Department of Energys Atmospheric System Research 2013 Science Team Meeting. Potomac, MD. March, 2013.

A70 Development of an air quality model for particle formation from sulfur compounds and amines. 32^{nd} Annual Conference of the American Association for Aerosol Research. Portland, OR. October, 2013.

A71 New particle formation from methanesulfonic acid, ammonia and amines: developing a mechanistic basis for global models. U.S. Department of Energys Atmospheric System Research 2014 Science Team Meeting. Potomac, MD. March, 2014.

A72 Particle formation from methanesulfonic acid and ammonia/amines via laboratory experiments, ab initio calculations, and modeling studies. 33^{rd} Annual Conference of the American Association for Aerosol Research. Orlando, FL. October, 2014.

A73 Effects of global warming mitigation strategies in major energy sectors on primary and secondary aerosol. 33rd Annual Conference of the American Association for Aerosol Research. Orlando, FL. October, 2014.

A74 Contribution of biomass use for renewable energy to particulate matter formation. 33rd Annual Conference of the American Association for Aerosol Research. Orlando, FL. October, 2014.

A75 Impacts on air quality by photosensitized production of singlet molecular oxygen by PAHs and oxy-PAHs in the lower atmosphere: an experimental and computational modeling approach. American Geophysical Union Fall Meeting. San Francisco, CA. December, 2014.

A76 Air quality assessment of alternative fuels for low carbon fuel standards. CRC Mobile Source Air Toxics Workshop. Sacramento, CA. February, 2015.

A77 Impact of organosulfur compounds at the marine/urban interface in a decreasing SO2 world. 249th American Chemical Society National Meeting & Exposition. Denver, CO. March, 2015.

A78 Air emissions from biopower production. 2015 International Emissions Inventory Conference. Air Quality Challenges: Tackling the Changing Face of Emissions. San Diego, CA. April, 2015.

A79 Changes in emissions due to GHG mitigation strategies. 2015 International Emissions Inventory Conference. Air Quality Challenges: Tackling the Changing Face of Emissions. San Diego, CA. April, 2015.

A80 Addressing air quality issues of biopower in California. 2015 Environmental Vision—An International Electricity Sector Conference. Crystal City, VA. May, 2015.

A81 Regional and near field air quality implications with wide spread deployment of DG/CHP in California. ASME Power and Energy 2015. San Diego, CA. June, 2015.

A82 Impact of global climate change on ozone, particulate, and secondary organic aerosol concentrations in California: a model perturbation analysis. 34th Annual Conference of the American Association for Aerosol Research. Minneapolis, MN. October, 2015.

A83 Dynamics of aromatic-derived SOA in the South Coast Air Basin of California. 34th Annual Conference of the American Association for Aerosol Research. Minneapolis, MN. October, 2015.

A84 Aerosol mixing state impacts on aqueous phase chemistry. American Meteorological Society's 18th Conference on Atmospheric Chemistry. New Orleans, LA. January, 2016.

A85 Particle-resolved modeling of in-cloud chemistry. 35th Annual Conference of the American Association for Aerosol Research. Portland, OR. October, 2016.

A86 Impact of ammonia on dynamics of anthropogenic SOA formation and composition. 35th Annual Conference of the American Association for Aerosol Research. Portland, OR. October, 2016.

Distinguished Lectures:

S1 Current state-of-the-art aerosol models. Plenary lecture. Atmospheric Environment Service. Toronto, Canada. March 3, 1997.

S2 Mathematical modeling of the physics and chemistry of atmospheric aerosols. W. E. Schiesser Endowed Lecture. Lehigh University. Bethlehem, PA. February 17, 1999.

S3 Chemical effects of diesel trap-related emissions and other current topics in atmospheric chemical modeling. Plenary lecture. 19th Annual Symposium on Kinetics and Photochemical Processes in the Atmosphere. University of California, Los Angeles. Los Angeles, CA. February 28, 2002.

S4 Chemical effects of diesel trap related emissions and other current topics in atmospheric modeling. Keynote lecture. Center for Environmental Analysis—Centers of Research Excellence in Science & Technology (CEA-CREST): Third Annual Environmental Science Conference. Pasadena, CA. May, 2002.

S5 Modeling studies of polluted and remote atmospheres with heterogeneous and interface chemistry. Keynote lecture. Gordon Research Conference on Atmospheric Chemistry. Big Sky, MT. September, 2003.

S6 Applications of chemical kinetics to current issues—a study in air quality and transportation. Plenary lecture. 28^{th} Symposium on Kinetics and Photochemical Processes in the Atmosphere. Irvine, CA. March, 2011.

S7 Chemical and physical modeling of atmospheric aerosols. Plenary lecture. 2^{nd} Conference of the Brazilian Association for Aerosol Research. Rio de Janeiro, Brazil. August, 2011.

S8 Latest developments in predicting aromatic-derived SOA in a regional air quality model. Keynote Lecture. Pacifichem 2015. The International Chemical Congress of Pacific Basin Societies. Honolulu, HI. December, 2015

Invited Seminars:

P1 Integration of Problem Solving Environments on air quality models. National Science Foundation—Division of Advanced Scientific Computing. Santa Fe, New Mexico. March 2, 1996.

P2 Computational analysis of urban and regional air quality models. California Institute of Technology. Department of Chemical Engineering. Pasadena, California. April 9, 1996.

P3 A PSE for airshed models using the $3D+T+M^k$ archetype. Center for Research in Parallel Computation. Argonne National Laboratory (ANL), Argonne, Illinois. May 16, 1996.

P4 The reusability of PSEs in CFDs. National Science Foundation—Division of Advanced Scientific Computing. University of California, Irvine. August 20, 1996.

P5 Information technology for environmental solutions. IBM Almaden Research Center. San Jose, CA. Oct 30, 1996.

P6 Problem Solving Environments for parallel computing: A case study on air quality modeling. SUPERCOMPUTING '96. Pittsburgh, PA. Nov 19, 1996.

P7 Modeling, visualization and high performance computing. Computing in Environmental Resource Management Conference. Sponsored by the Air and Waste Management Association and the U.S. Environmental Protection Agency. Research Triangle Park, NC. Dec 3, 1996.

P8 PM simulation methods & impact of climate change on air quality. Electric Power Research Institute. Palo Alto, CA. January 23, 1997.

P9 Managing specificity and generality: tailoring general archetypal PSEs to specific users. 1997 Center for Research on Parallel Computation Annual Meeting. Rice University, Texas. May 21, 1997.

P10 The implementation of symbolic computations on large-scale atmospheric numerical simulations. 1997 IMACS Conference on Applications of Computer Algebra. International Association for Mathematics and Computers in Simulation. Conference on Applications of Computer Algebra. Maui, Hawaii. July 25, 1997.

P11 Problem Solving Environments for Parallel Computing in the classroom. SUPERCOMPUTING '97. San Jose, CA. November, 1997.

P12 Mathematical modeling of the size and composition distribution of $PM_{2.5}$ aerosols. Air and Waste Management Association and the U.S. Environmental Protection Agency. Long Beach, CA. January 27, 1998.

P13 Improving codes capable of more detailed treatment of air quality. Pacific Northwest National Laboratory. First workshop on atmospheric aerosols. Richland, WA. August, 1998.

P14 Incorporating aerosol dynamics into global chemistry transport models. Atmospheric Chemistry Division. National Center Atmospheric Research. Boulder, CO. October 23, 1998.

P15 Modeling of laboratory studies of Cl_2 formation by reaction of O_3 with deliquesced NaCl particles. 16^{th} Annual Symposium on Kinetics and Photochemical Processes in the Atmosphere. California State University–Los Angeles. Los Angeles, California. February 1999.

P16 Applied mathematics, fast computers and clean air. Department of Mathematics. Harvey Mudd College. Claremont, CA. May 5, 1999.

P17 The chemical mechanism for Cl_2 production from NaCl aerosol and ozone. 17^{th} Annual Symposium on Kinetics and Photochemical Processes in the Atmosphere. University of California, Irvine. Irvine, California, February 2000.

P18 Parallel computation and applied mathematics aspects of atmospheric modeling. Institute for Mathematics and its Applications. Minneapolis, MN. March 18, 2000.

P19 Mechanical Engineering in the Information Age. Department of Mechanical and Aerospace Engineering. University of California, Irvine. Irvine, CA. June 2, 2000.

P20 Dynamics of particle pollutants in Los Angeles. Department of Community and Environmental Medicine. University of California, Irvine. Irvine, CA. June 2, 2000.

P21 Parallel computations in atmospheric chemical modeling. Ohio Supercomputer Center. Columbus, OH. October, 2000.

P22 Parallel computations in atmospheric chemical modeling. Computational Science Research Center. San Diego State University. San Diego, CA. November, 2000.

P23 Mathematical modeling of size and chemically resolved urban atmospheric aerosols. Atmospheric Chemistry Colloquium Series. Pacific Northwest National Laboratory. Richland, WA. January 8, 2001.

P24 Mathematical modeling of halogen activation in sea-salt aerosols. Environmental Engineering Science/Global Environmental Science. California Institute of Technology. Pasadena, CA. January 24, 2001.

P25 New discoveries in the chemistry of Cl in the lower atmosphere and its impact on air quality. Department of Chemistry. University of Houston. Houston, TX. February 8, 2001.

P26 Mathematical modeling of size and chemically resolved urban atmospheric aerosols. Department of Chemical Engineering. University of Houston. Houston, TX. February 9, 2001.

P27 The chemistry and control of VOCs and NOx emissions in the South Coast Air Basin of California. 18^{th} Annual Symposium on Kinetics and Photochemical Processes in the Atmosphere. California Institute of Technology. Pasadena, CA. February, 2001.

P28 Dynamics of pollutants in the South Coast Air Basin of California. CEA-CREST Winter Seminar. California State University, Los Angeles. Los Angeles, CA. March 9, 2001.

P29 Mathematical modeling of urban and regional air pollution. University of Houston. Houston, TX. May 14, 2001.

P30 A combined hydrophobic-hydrophilic module for predicting secondary organic aerosol formation. European Aerosol Conference Special Session on Secondary Organic Aerosol. Leipzig, Germany. September, 2001.

P31 The Earth's atmosphere viewed from a chemical engineering perspective. Department of Chemical Engineering. Rice University. Houston, TX. November 29, 2001.

P32 Modeling California air quality dynamics by parallel computation — Impact of various control strategies on particulate matter. Atmospheric Sciences seminar series. Department of Land, Air & Water Resources. University of California, Davis. Davis, CA. December 4, 2001.

P33 Chlorine emissions from activated sea-salt aerosols and their potential impact on ozone. Chairman's Air Pollution Seminar. California Air Resources Board. Sacramento, CA. March 31, 2002.

P34 Chemical effects of diesel trap related emissions and other current topics in atmospheric modeling. Center for Environmental Analysis—Centers of Research Excellence in Science & Technology (CEA-CREST): Third Annual Environmental Science Conference. Pasadena, CA. May, 2002.

P35 Aerosol dynamics of NOx and VOC control. EPA Science Forum 2002. Washington, DC. May, 2002.

P36 Mathematical modeling of air pollution. Departament d'Enginyeria Química. Escola Tècnica Superior d'Enginyeria Química. Tarragona, Spain. June 28, 2002.

P37 Mathematical modeling of atmospheric aerosols. Departament de Proyectos de Ingeniería. Universitat Politècnica de Catalunya. Barcelona, Spain. July 4, 2002.

P38 The role of fluid dynamics in mathematical air quality models. Fluid Mechanics Series. Department of Mechanical & Aerospace Engineering. University of California, San Diego. San Diego, CA. October 21, 2002.

P39 Air Quality Monitoring. Academy for Lifelong Learning. University of California, Irvine. Irvine, CA. February 20, 2003.

P40 Reactions at the interface of deliquesced NaBr particles. Workshop on chemistry at interfaces. Beckman Center. National Academy of Sciences & Engineering. Irvine, CA. July, 1, 2003.

P41 Why interfaces matter in the atmosphere: a modeling perspective. Workshop on chemistry at interfaces. Beckman Center. National Academy of Sciences & Engineering. Irvine, CA. July, 1, 2003.

P42 Release of Molecular Bromine from the Reaction of O3 and OH with NaBr Aerosol. Gordon Research Conference on Atmospheric Chemistry. Big Sky, MT. September, 2003.

P43 Modeling ozone formation metrics in the South Coast Air Basin of California. Gordon Research Conference on Atmospheric Chemistry. Big Sky, MT. September, 2003.

P44 An integrated approach to understanding the air-water interface in atmospherically relevant systems. Collaborative Research in Chemistry Conference 2003. Washington, DC. November 3, 2003.

P45 Comparison of ozone formation among various US cities. EPA Air Quality Projects Workshop. University of Houston. Houston, TX. December 16, 2003.

P46 Modeling and experimental studies of heterogeneous and interface chemistry In the troposphere. Department of Earth Sciences. University of New Hampshire. April, 2004.

P47 Urban air quality impacts of distributed generation in the South Coast Air Basin of California. Energy Systems Integration Public Lectures. California Energy Commission. Sacramento, CA. October 13, 2004.

P48 Distributed energy resources and air quality in California. Department of Earth System Sciences, UCI. Irvine, CA. January 19, 2005.

P49 Update on the development and application of CACM and MPMPO. Electric Power Research Institute. Palo Alto, CA. February 4, 2005.

P50 Recent advances in the modeling of secondary organic aerosol dynamics. Universitat Politècnica de Catalunya. Barcelona, Spain. March 7, 2005.

P51 The UCI-CIT Airshed Model. West Coast SECA Meeting. Santa Cruz, CA. April 22, 2005.

P52 Gas-phase molecular halogen formation from sea-salt aerosols: When are interface reactions important? Ions and molecules at aqueous interfaces workshop. Prague, Czech Republic. June 27, 2005.

P53 Why is the whole greater than the sum of its parts? First Joint Meeting of the NSF-DOE Environmental Molecular Science Institutes Program. Arlington, VA. August 26, 2005.

P54 Heterogeneous interfacial reactions: a new paradigm in atmospheric chemistry. The Chicago Section of the American Chemical Society. Des Plaines, IL. September 23, 2005.

P55 Applied mathematics issues related to parallel computations in atmospheric chemical modeling. Department of Mathematics, University of Houston. Houston, TX. October 25, 2006.

P56 Distributed generation & advanced energy conversion technologies and their associated air quality impacts in the South Coast Air Basin of California. Department of Mechanical Engineering, University of California, Riverside. Riverside, CA. January 19, 2007.

P57 Estudio de incertidumbres en un modelo urbano de la calidad del aire. Physics Department. Universidad Autónoma Metropolitana. Mexico. April 20, 2007.

P58 Impact of sea-salt aerosol on the weekend effect. Department of Atmospheric & Oceanic Sciences, University of California, Los Angeles. Los Angeles, CA. May 9, 2007.

P59 Coupling distributed generation and transportation futures to the quality of the urban environment. California: Prosperity through technology. Energy and the Environment. 6^{th} Annual Industry Research Symposium. Irvine, CA. May 15, 2007.

P60 Impact of sea-salt aerosol on the weekend effect. Department of Aerospace and Mechanical Engineering, University of Southern California. Los Angeles, CA. Feb 20, 2008.

P61 Climate change and impact: a global perspective. 2008 Tenth Annual Beckman Scholars Symposium. Irvine, CA. July 26, 2008.

P62 Understanding regional DG impacts and placement options in Central and Southern California. California Energy and Air Quality Conference. The California Energy Commission's Public Interest Energy Research Conference. Diamond Bar, CA. October 29, 2008.

P63 The links among energy, transportation and air quality. UC San Diego Scripps Institution of Oceanography. San Diego, CA. March 17, 2009.

P64 Computational issues related to atmospheric chemical modeling. Barcelona Supercomputing Center. Barcelona, Spain. June 9, 2009.

P65 Distributed energy resources, transportation futures, and air quality in the urban environment. Civil and Environmental Engineering Department. Rice University. Houston, TX. November 13, 2009.

P66 Adaptation for future air quality analysis and decision support tools in light of global change impacts and mitigation. U.S. Environmental Protection Agency. Research Triangle Park, NC. October 5, 2010.

P67 Air quality implications of increasing alternative fuel use. Third California Energy and Air Quality Conference. The California Energy Commission's Public Interest Energy Research Conference. Irvine, CA. November 2, 2010.

P68 Secondary Organic Aerosol. EPRI–A&WMA Workshop on Future Air Quality Model Development Needs. Washington, DC. September, 2011. (Moderator)

P69 New particle formation from methanesulfonic acid and amines in air. AirUCI annual workshop. Laguna Beach, CA. February, 2013. (Author)

P70 Atmospheric chemistry, parallel computing, and applied mathematics. Department of Mathematics. University of California, Irvine. Irvine, CA. May, 2013.

P71 Impacts of distributed generation on air quality in different regions of the U.S. EPRI Workshop: Air Quality Impacts of Natural Gas Combustion for Electricity Generation. Palo Alto, CA. August, 2013.

P72 State-of-the-science of computational models for urban air pollution dynamics. American Association for the Advancement of Science. U.S.–Iran symposium on air pollution in megacities. National Academy of Sciences. Irvine, CA. September, 2013.

P73 Atmospheric impact of energy distribution: from laboratory chamber experiments to policy makers' awareness, via parallel computation simulations. Chemical Engineering Department. Columbia University. New York, NY. September, 2013.

P74 The road map to improve air quality in Texas. EPRI 2013 Fall Environment and Renewables Program Advisory Meeting. Kansas City, MO. September, 2013.

P75 The South Coast Air Basin of California: air quality and energy dynamics. Society of Hispanic Professional Engineers Annual Conference 2013—Environmental Sustainability and Earth Systems Engineering Research Symposium. Indianapolis, IN. November, 2013.

P76 Air quality impacts of GHG mitigation strategies in the power generation and transportation sectors. AirUCI annual workshop. Laguna Beach, CA. January, 2014. (Author)

P77 Particles and their precursors: from Angstrom to regional scales. AirUCI annual workshop. Laguna Beach, CA. January, 2014. (Author)

P78 Computational issues related to mathematical modeling of atmospheric systems. Computational Science Research Center. San Diego State University, San Diego, CA. April, 2014.

P79 The impact of biomass energy usage to air quality in southern California. Society of Hispanic Professional Engineers Annual Conference 2014—Environmental Sustainability and Earth Systems Engineering Research Symposium. Detroit, MI. November, 2014.

P80 Assessment of the emissions and energy impacts of biomass and biogas use in California. California Air Resources Board, Sacramento, CA. March, 2015.

P81 Mathematical modeling of the atmosphere—Overview and examples of two current issues. Centre d'Enseignement et de Environnement Atmosphérique. École des Ponts ParisTech. France. June, 2015.

Pedagogical Activities:

- Guest lecturer: University Studies 1. (F15, W16)
- Freshman Seminar: The link between Energy and the Environment. Updated the seminar that I developed in 2008 and volunteered to teach. Fall, 2015.
- Implemented high-bandwidth video conferencing to broadcast live MAE-261 lectures to students at Rice University. This effort was supported by professional audio and video specialists at UCI's Teaching, Learning and Technology Center. Winter, 2013.
- Completed the development of a new version of MAE-10 to focus on Matlab instead of FORTRAN programming. Spring, 2012.
- Developed the online version of the course *Introduction to Engineering Computations.* The online course consists of 35 videos, each of approximately 10-15 minutes in length. Since its development, it has been offered by UCI Extension program via the Open Courseware Consortium. Fall, 2011.
- Advisor to the 2011 Sustainability Science Team. The team includes 5 Ph.D. candidates from the School of Physical Sciences, School of Social Sciences, School of Social Ecology, and the Henry Samueli School of Engineering. Project: to develop an integrated approach to studying the Salton Seas water quality, hydrological cycle, and purification technologies available to restore and sustain the salinity and eutrophic levels. Fall, 2011.
- Advisor to the 2010 Sustainability Science Team. The team includes 5 Ph.D. candidates in the School of Humanities, the Merage School of Business, the Henry Samueli School of Engineering, the School of Social Ecology, and the School of Physical Sciences. Project: to develop sustainability indicators that can be used to guide and manage sustainable development in communities that experience rapid upswings and downturns in growth, associated with dramatic changes in the economic environment. Fall, 2010.
- Freshman Seminar: The link between Energy and the Environment. Developed and taught a new specialized seminar designed for the freshman class. Spring, 2008.

Courses Taught:

Freshman Seminar – Energy & Environment
S08, F15

MAE-10 Introduction to Engineering Computations (Undergraduate)
F98, F99, F00, F01, F02, F03, F04, WF05, WF06, WF07, WF08, WF09, SF11, S12, SF13, SF14. F15

MAE-164 Air Pollution and Control (Undergraduate)
S96, S97, S02, W10, W11, W12, W14, W15, W16

MAE-185 Numerical Analysis in Mechanical Engineering (Undergraduate)
S98, S01, S04, S06, S07, F10

MAE-189A Senior Project (Undergraduate)
F99, F00

MAE-189B Senior Project (Undergraduate)
W00, W01, W06, W07

MAE-189C Senior Project (Undergraduate)
S99, S01, S07

MAE-199 Individual Study (Undergraduate)
W97, WSF04, WF05, F06, WS07, W09, F10, WSF11, WSF12, WSF13, WSF14, WSF15, 10-wkSumr15, WS16

MAE-200A Engineering Analysis I (Graduate)
F95, F96, F97

MAE-200B Engineering Analysis II (Graduate)
W02

MAE-261 Air Quality Modeling (Graduate)
W96 as MAE-295, W97, W98, W99, W01, W03, S08, S10, W13

MAE-264 Combustion Particles and Aerosols (Graduate)
W00, W04

MAE-294 MS Project (Graduate)
F02, W03, S06, WSF07, WSF08, WSF09, S15

MAE-295 Seminars in Engineering (Graduate)
F96, WSF97, WS98, WSF07, WSF08, WSF09

MAE-296 Master of Science Thesis Research (Graduate)
F96, WSF97, WSF98, WSF99, WSF00, WS02, WS03, W04, WF05, WSF06, WSF07, WSF08, WSF09, WS10, F12, WSF13, WSF14, WS15

MAE-297 Doctor of Philosophy Dissertation Research (Graduate)
F98, WSF99, WSF00, WSF01, WS02, F03, WF04, WSF05, WSF06, WSF07, WSF08, WSF09, WSF10, WSF11, WS12, F15, WS16

MAE-298 Seminars in Mechanical Engr (Graduate)
F96, WS97

MAE-299 Individual Research (Graduate)
S98, WSF99, F00, WSF01, WSF02, WSF03, WSF04, WSF05, S06, WSF07, WSF08, WSF09, W13, W14, 2ndSumrSess15

Services:

Systemwide Service

- UCI Campus representative for the Coalition for National Science Funding (CNSF) to target key Congressional appropriations offices to advocate for support for the National Science Foundation. Capitol Hill, Washington DC. 2011.

Campus Administration and Services

- Associate Dean of Undergraduate Education. Main responsibilities include: Academic Testing Center, Academic Honesty, Blackstone LaunchPad, Undergraduate/Undeclared Advising Program, Capital Internship Program, and Study Abroad Center. 2015–present.
- Member of the UCI Research Computing and Networking Advisory Committee to provide direction for research computing and research networking campus-wide, as well as to guide OIT's research computing services, strategies and policies. 2014–present.
- Member of the search committee for the Executive Director of the Office of Inclusive Excellence. Appointed by Vice Provost Doug Haynes. 2016.

- Member of the ADVANCE Program Advising Committee (APAC) chaired by Prof. Doug Haynes to monitor and assess UCI policies and progress in developing and maintaining an equitable environment for all UCI faculty. 2013–2015.
- Member of the Faculty Assessment of the State of Research Computing Committee appointed by Vice Chancellor of research John Hemminger to assess the state of research computing on campus. 2012–2013.
- Member of the UCI Environment Institute Steering Committee. Appointed by Dean Rafael L. Bras. Chair: Prof. Michael Prather. 2008–2012.
- Member of the search committee for the Dean of the School of Physical Sciences. Appointed by Executive Vice Chancellor and Provost Michael R. Gottfredson. 2011.
- Member of the faculty recruiting committee for the Department of Mechanical and Aerospace Engineering via the UC Environment Institute. Person hired: Prof. Jacob Brouwer. 2011.
- Member of the faculty recruiting committee for the Department of Chemical Engineering and Materials Science and Chemistry via the UC Environment Institute. Person hired: Prof. Allon I. Hochbaum. 2011.
- Reviewer of the campus wide Global Change, Energy, and Sustainable Resources proposals. 2009.
- Member of the recruiting committee to hire an environmentally oriented faculty member. Appointed by Dean Rafael L. Bras. Person hired: Prof. Jasper Vrugt. 2009.
- Participant and organizer AirUCI, a new Organized Research Unit on campus to bring together faculty from the School of Physical Sciences, HSSoE, and the College of Health Sciences. The new ORU was approved. The ORU triples the number of scientists involved in AirUCI and vastly expands its scope. 2008.
- Member of the Broadcom computer server donation coordination group. 2008.
- Member of the campus committee to generate recommendations on how UCI should proceed to develop the area of Energy and the Environment. Appointed by Dean Nicolaos G. Alexopoulos and Dean John C. Hemminger. 2006–2007.
- Member of the *Computational Science* group at UCI. Coordinate recruitment efforts in computational math, science and engineering on campus and provide a forum for learning more about what UCI's strengths are in this area around campus. 1997–2003.
- Member of the Conflict of Interest Oversight Committee. 2001, 2002.
- Director of the Aeneas Parallel Supercomputer users group. Help coordinate the distribution of resources, system administration, user policy, and software installation of the Aeneas supercomputer. 1998–2002.
- Member of the campus wide *Parallel Computing Capability* group. Plan the strategy and hardware acquisitions at UCI to perform research on concurrent computations. 1997–2002.
- Faculty adviser to Undecided/Undeclared freshman students. Working with Prof. Robert Newsom, Associate Dean, Division of Undergraduate Education. Fall 1998, Spring 1999, Winter 2000, and Winter 2001.

School Services

- Equity Advisor for the UCI ADVANCE Program for Faculty Equity and Diversity. Faculty recruiting strategies and raising awareness of Best Practices. Organize faculty development programs. Address individual issues raised by women and underrepresented minority faculty. 2013–2015.
- Successful strategies for tenure for assistant professors in engineering and ICS—Panelist. 2011.
- Member of the HSSoE Environmental Engineering Review Committee. 2007–2009.

- Member of the HSSoE Sustainable Energy Committee. 2009.
- Member of the HSSoE Energy and Environment Academic Planning Committee. 2008.
- Participant in the FTE Proposal initiative "Energy, Air and Water Resources." 2007
- Member of the School committee to develop graduate student recruiting and funding from Mexico. 2002.
- MAE representative to the School of Engineering Committee on Computing. 1998–2001.
- MAE representative to the School of Engineering Faculty Research and Travel Committee. 1998, 2001.
- Chairman of the School of Engineering Faculty Research and Travel Committee. 1999–2000.
- MAE representative for the graduate program in Environmental Engineering. Responsibilities include: admission of all new applicants to the program, evaluation of all existing students, curriculum design, and financial aid distribution. 1995–2000.
- Chairman of the committee to evaluate introductory computing course consolidation for all engineering freshmen. 1999.
- Member of the search committee for new Environmental Engineering faculty member in the department of Civil and Environmental Engineering. Jan 1997.

Department Services

- Faculty Mentoring Program — Mentor and support junior faculty in the department. Strategies for success. How to navigate challenges. 2016–present.
- Diversity efforts. 2015–present.
- Graduate admissions advisor and student communications. 2015–present.
- Website and communications. 2015–present.
- Computational Resources Committee. 2012–present.
- Honors, Awards, and Prizes Committee. 2012–present.
- Graduate Studies Committee. 2009–present.
- Graduate student advisor — Preliminary Exam Coordinator. Organize faculty and students to implement the three components of the preliminary exam. The exam is scheduled twice a year. 2011–2015.
- Faculty Recruiting Committee. Persons hired: Prof. Yoonjin Won and Prof. Jaeho Lee. 2013–2014.
- Chairman of the MAE committee to plan future strategy in the area of energy and environment. Develop an outline for strategic areas of growth (with Prof. Jack Brouwer and Prof. Yun Wang). 2013.
- Chairman of the Mathematics Preliminary Exam. 2009–2010.
- Graduate Student Advisor. 2005–2009.
- Chairman of the MAE Graduate Studies Committee. 2005–2009.
- Member of the program planning committee of Energy and Atmospheric Quality. 2007.
- Head coordinator for ABET evaluation. 2004–2005.
- Graduate student advisor. 2002.
- Promote graduate student recruitment in Spain. 2002.
- Installation of the wireless network in the department. 2001.
- Member of the department committee in charge of graduate student recruiting and admission. 2001.

- Member of the Mechanical & Aerospace Engineering Department Computer Committee. 1996–2000.
- Participant of the High Tech Committee chaired by Professor Ken Mease. 2000.
- Webmaster of Mechanical & Aerospace Engineering Department. `http://www.eng.uci.edu/~maeadmin`. 1995–1999.
- Hardware and network upgrade planning for all the staff in the department. 1999.
- American Society of Mechanical Engineers Student Adviser. 1997–1998.
- Member of the committee to design a program for Mechanical Engineering / Environmental Engineering double majors. Fall 1998.
- Faculty Secretary. 1995–1997.
- Coordinator for the Fluid and Thermal Science Seminar series offered by the Mechanical Engineering Department. 1996–1997.

Community Services

- Hosted student for the St. Margarets Episcopal School Summer Internship Program. Project: Chaos dynamics and the computational generation of Sierpinski triangle. Student hosted: Kendall Robison. Summer, 2015.
- Participant in yearly "Summer Teacher Training Program in Environmental Chemistry." The program is a two-week summer Environmental Chemistry program for science teachers in grades 8-12. 2005–2013.
- Guest speaker in the Osher Lifelong Learning Institute (OLLI). What is the state of the science of air pollution issues in Southern California? Irvine, CA. November, 2007.
- Participant in "Community Day." A symposium to present the results of new research to the public and to provide tours of the UCI computational and experimental laboratories. 2005–2007.
- Reviewer for the Southern California Junior Science and Humanities Symposium, K 9-12 students. September, 2004.
- Participant in the ASUCI High School Outreach program. 2002.

Diversity

- Mentor for Valerie Elvira Martinez during a 10-week summer program conducting research in my laboratory. CAMP Summer Science Scholars. University of California Louis Stokes Alliance for Minority Participation (LSAMP). 2016
- Mentor for Marlayna Victoria Montenegro during a 10-week summer program conducting research in my laboratory. CAMP Summer Science Scholars. University of California Louis Stokes Alliance for Minority Participation (LSAMP). 2016
- Reviewer of UCI's *High Impact Hiring Plan* proposals. The goal is to identify diverse faculty leaders whose scholarly, scientific, and creative accomplishments and career trajectories promise to accelerate our ascendancy among the ranks of globally preeminent research universities. 2014–2016.
- Judge for SHPE 2015 technical paper/poster competition. Society of Hispanic Professional Engineers. Baltimore, MD. September, 2015.
- Member of the UCI recruitment table during the Grad School Fair of the Society of Hispanic Professional Engineers Conference 2014. Detroit, MI. October, 2014.
- Judge for SHPE 2014 technical paper/poster competition. Society of Hispanic Professional Engineers. Detroit, MI. September, 2014.

- Quantum efficiency of $O_2(^1D)$ formation by pyrene: an experimental, theoretical and modeling approach. Presentation at the Cal State LA MORE (Minority Opportunities in Research) Program.
- Member of the UCI recruitment table during the Grad School Fair of the Society of Hispanic Professional Engineers Conference 2013. Indianapolis, IN. October, 2013.
- Guest speaker to UCI's Student Chapter of the Society of Hispanic Professional Engineers. Irvine, CA. October, 2013.
- Judge for SHPE 2013 technical paper/poster competition. Society of Hispanic Professional Engineers. Indianapolis, IN. September, 2013.
- Guest speaker to UCI's Student Chapter of the Society of Hispanic Professional Engineers. Irvine, CA. March, 2012.
- Guest speaker to UCI's Student Chapter of the Society of Hispanic Professional Engineers. Irvine, CA. March, 2010.
- Guest speaker to UCI's Pi Beta Phi Sorority. Scholar dinner program. Irvine, CA. 2010.