

# RESUME

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### Education:

1992-1996 Stanford University, Ph.D. in Civil (Environmental) Engineering, minor in Petroleum Eng.  
1991-1992 Stanford University, M. S., Civil (Environmental) Engineering  
1976-1980 Cornell University, B. S., *cum laude*, Chemical Engineering and B. A., Chemistry

### Experience:

2006-present UNIVERSITY OF CALIFORNIA, Santa Barbara, CA  
Professor, Bren School of Environmental Science and Management.  
2002-2006 UNIVERSITY OF CALIFORNIA, Santa Barbara, CA  
Associate Professor, Bren School of Environmental Science and Management.  
1996-2002 UNIVERSITY OF CALIFORNIA, Santa Barbara, CA  
Assistant Professor, Bren School of Environmental Science and Management.  
1992-1996 STANFORD UNIVERSITY, Palo Alto, CA  
Dissertation title: "Single and Multiphase Transport in Fractured Porous Media".  
Advisors: Dr. Paul Roberts and Dr. Martin Blunt.  
1992-1996 ELECTRIC POWER RESEARCH INSTITUTE, Palo Alto, CA  
Research Associate in the Environmental Division  
1980-1991 GRUPO INDUSTRIAL SUMMA, Mexico City, MEXICO  
Project Manager to Technical Director, involved with the development of new products and processes in chemical, textile and automotive industry. Led development of CFC-free formulation for polyurethane formulations, and treatment system for aqueous solution of aniline dyes.

### Membership in Professional Organizations:

American Chemical Society (ACS)  
American Geophysical Union (AGU)  
Association of Environmental Engineering and Science Professors (AEESP)  
Society for Environmental Toxicology and Chemistry (SETAC)

### Professional and Institutional Service

Member of the Executive Committee of the University of California Toxic Substances Research and Teaching Program (UC-wide program) from 2000 to 2003  
Member of the Advisory Board of the Institute of Crustal Studies – Acting Chair in 1999/2000  
Member of the Chancellor's Advisory Board on Outreach Activities (1998-2000)  
Member of USEPA's Science Advisory Board review team for Report on the Environment (2004-5)  
Co-Director, UC Center for the Environmental Implications of Nanotechnology

### Selected Publications (from 81 publications):

Auset, M, AA Keller, F Brissaud, V Lazarova., 2005. Intermittent filtration of bacteria and colloids at pore and column scales. *Water Resources Research*, 41(9), W09408 10.1029/2004WR003611  
Auset, M, AA Keller. 2004. Pore scale processes that control dispersion of colloids in saturated porous media. *Water Resources Research*, 40(3):W03503, 10.1029/2003WR002800  
Auset, M. and A. A. Keller. 2006. Pore-scale visualization of colloid straining and filtration in saturated porous media using micromodels. *Water Resour. Res.*, 42, W12S02, doi:10.1029/2005WR004639.

- Broje V. and A. A. Keller. 2006. Improved Mechanical Oil Spill Recovery Using an Optimized Geometry for the Skimmer Surface. *Environ. Sci. Tech.* 40(23):7914-7918
- Broje V. and A. A. Keller. 2007. Effect of Operational Parameters on the Recovery Rate of an Oleophilic Drum Skimmer. *Journal of Hazardous Materials*, 148:136–143, doi:10.1016/j.jhazmat.2007.02.017
- Broje, V and AA Keller. 2005. Materials Selection for Oil Spill Recovery in Marine Environments. Conference Proceedings of International Oil Spill Conference, April 2005, Orlando, FL
- Broje, V. and A. A. Keller. 2006. Improved Mechanical Oil Spill Recovery Using an Optimized Geometry for the Skimmer Surface. *Environ. Sci. Tech.* 40(23):7914-7918
- Broje, V. and A. A. Keller. 2007. Effect of Operational Parameters on the Recovery Rate of an Oleophilic Drum Skimmer. *Journal of Hazardous Materials*, doi:10.1016/j.jhazmat.2007.02.017
- Broje, V. and A. A. Keller. 2007. Interfacial interactions between hydrocarbon liquids and solid surfaces used in mechanical oil spill recovery. *J. Colloid & Interface Science*, 305:286–292, doi:10.1016/j.jcis.2006.09.078
- Chen, M, AA Keller, D Zhang, Z Lu and GA Zyvoloski. 2006. Stochastic Analysis of Transient Two-Phase Flow in Heterogeneous Media. *Water Resources Research*, 42, W03425, doi:10.1029/2005WR004257.
- Chen, M, AA Keller, Z Lu. 2007. Stochastic analysis of transient three-phase flow in heterogeneous porous media. *Stoch Environ Res Risk Assess.* DOI 10.1007/s00477-007-0198-y
- Chen, M, D Zhang, AA Keller, and Z Lu. 2005. Stochastic Analysis of Steady-State Two-Phase Flow in Heterogeneous Media. *Water Resources Research*, 41(1): W01006, doi: 10.1029/2004WR003412
- Harrison, L, Jackson, M, Pettifor, G, Purpus, L, Splenda, J, White, S, Frew, J and AA Keller. 2005. Evaluation of the Impact of and Management Strategies for Diazinon and Chlorpyrifos in Newport Bay. California and the World Ocean '02. ASCE, pp. 1158-1163, doi:10.1061/40761(175)103
- Keller AA, A Wilson. 2001. Modelling the seasonal variation in bioavailability of residual NAPL in the vadose zone, in *Int. Assoc. of Hydrological Sciences, Groundwater Quality 2001*, Sheffield, UK.
- Keller AA, M Chen. 2003. Effect of Spreading Coefficient on Three-Phase Relative Permeability of NAPL. *Water Resources Research*, 39(10):1288
- Keller, A.A., Cavallaro, L. 2007. Assessing the US Clean Water Act 303(d) listing process for determining impairment of a waterbody. *Journal of Environmental Management*, doi:10.1016/j.jenvman.2006.12.013
- Keller, A.A., V. Broje, K. Setty. 2007. Effect of Advancing Velocity and Fluid Viscosity on the Dynamic Contact Angle of Petroleum Hydrocarbons. *Journal of Petroleum Science and Engineering*, 58(1-2):201-206, doi: 10.1016/j.petrol.2006.12.002
- Keller, AA and D. Griset, 2005. Stormwater Runoff Management and Synergistic Water Quality Planning related to Proposed Major Projects in the 2004 Regional Transportation Plan. California Dept. of Transportation, Sacramento, CA.
- Keller, AA and Y Zheng, 2005. Approaches for Estimating the Margin of Safety in a Total Maximum Daily Load Calculation: Theoretical and Practical Considerations. EPRI, Palo Alto, CA. EPRI Report #1005473.
- Keller, AA and Y Zheng. 2004. Evaluation of Potential Water Quality Impacts from Different Future Growth Scenarios in the SCAG Area. Southern California Association of Governments, Los Angeles, CA.
- Keller, AA, L Cavallaro and C Ryals. 2006. Determination of Impairment of a Waterbody, EPRI, Palo Alto, CA. EPRI Report.
- Keller, AA, M Auset. 2006. Review of visualization methods of biocolloid transport processes at the pore scale under saturated and unsaturated conditions. *Advances in Water Resources*, 30(6-7): 1392-1407 doi:10.1016/j.advwatres.2006.05.013.
- Keller, AA, S Sirivithayapakorn, C Chrysikopoulos. 2004. Early breakthrough of Colloids and Bacteriophage MS2 in a water saturated sand column. *Water Resources Research* 40(8):W08304, doi:10.1029/2003WR002676
- Keller, AA, S Sirivithayapakorn. 2004. Transport of colloids in unsaturated porous media: Explaining large scale behavior based on pore scale mechanisms. *Water Resources Research*, 40, W12403, doi:10.1029/2004WR003315.
- Keller, AA, Y Zheng and TH Robinson. 2004. Determining Critical Water Quality Conditions For Inorganic Nitrogen in Dry Semi-urbanized Watersheds. *J. Am. Water Res. Assoc.* 40(3):721-735.
- Kram ML, AA Keller, SM Massick, LE Laverman. 2004. Complex NAPL Site Characterization using Fluorescence Part 1: Selection of Excitation Wavelength Based on NAPL Composition. *Intl J. Soil & Sediment Contamination*, 13(2):103-118
- Kram ML, AA Keller. 2004. Complex NAPL Site Characterization using Fluorescence Part 2: Analysis of Soil Matrix Effects on the Excitation/Mission Matrix. *Soil and Sediment Contamination*, 13(2):119-134
- Mitani, MM, AA Keller, OC Sandall, RG Rinker. 2005. Mass Transfer of Ozone using a Microporous Diffuser

- Reactor System. *Ozone Science & Engineering*, 27:45-51
- Robinson, TH, A Leydecker, AA Keller, JM Melack. 2004. Nutrient Export Coefficient Modeling in Mediterranean Coastal Streams. VI Inter-Regional Conf. on Environment-Water, Land and Water Use Planning and Management. CREA-UCLM. Paper # D-191, pp. 1-12.
- Robinson, TH, A Leydecker, AA Keller, JM Melack. 2005. Steps towards modeling nutrient export in Coastal Californian streams in a Mediterranean Climate. *Agricultural Water Management*, 77(1-3):144-158.
- Sirivithayapakorn S, AA Keller. 2003. Transport of colloids in saturated porous media: A pore scale observation of the size exclusion effect and colloid acceleration, *Water Resources Research*, 39(4):1109
- Sirivithayapakorn S, AA Keller. 2003. Transport of colloids in unsaturated porous media: A pore scale observation of processes during the dissolution of air-water interface, *Water Resources Research*, 39(12):1346
- Wang, P, AA Keller. 2007. AgInput: an agricultural nutrient and pesticide source model. *Environmental Modeling & Assessment*. DOI: 10.1007/s10666-007-9133-3
- Wang, P, AA Keller. 2008. Adsorption of Hydrophobic Organic Compounds onto a Hydrophobic Carbonaceous Geosorbent in the Presence of Surfactants. *Env. Chem. & Tox.*, 27(6):1237-43.
- Wang, P, AA Keller. 2008. Particle-Size Dependent Sorption and Desorption of Pesticides within a Water-Soil-Nonionic Surfactant System, *Env. Sci. Tech.*, *Env. Sci. Tech.* 42(9): 3381–3387, doi: 10.1021/es702732g
- Wang, P, AA Keller. 2008. Partitioning of hydrophobic organic compounds within soil–water–surfactant systems. *Water Research*, 42:2093 – 2101, doi:10.1016/j.watres.2007.11.015
- Willis M. and AA Keller. 2007. A framework for assessing the impact of land use policy on community exposure to air toxics. *J. Environ. Mgmt.*, 83(2):213–227, doi:10.1016/j.jenvman.2006.03.01
- Zheng, Y, and AA Keller. 2008. Stochastic Watershed Water Quality Simulation for TMDL Development – A Case Study in the Newport Bay Watershed. *JAWRA*, in press
- Zheng, Y, Keller, AA. 2007. Uncertainty assessment in watershed-scale water quality modeling and management: 2. Management objectives constrained analysis of uncertainty (MOCAU). *Water Resour. Res.*, 43(8):W08408, doi:10.1029/2006WR005346.
- Zheng, Y, Keller, AA. 2007. Uncertainty assessment in watershed-scale water quality modeling and management: 1. Framework and application of generalized likelihood uncertainty estimation (GLUE) approach. *Water Resour. Res.*, 43(8):W08407, doi:10.1029/2006WR005345.
- Zheng, Y., and A. A. Keller. 2006. Understanding parameter sensitivity and its management implications in watershed-scale water quality modeling, *Water Resour. Res.*, 42, W05402, doi:10.1029/2005WR004539.
- Zheng, Y, and AA Keller. 2003. Effect of the temporal scale of precipitation on water quality simulation: application to the Santa Clara River watershed. *AWRA 2003 Intl Congress on Watershed Mgmt for Water Supply Systems*, NY, NY.

## Recent Projects:

UC Center for the Environmental Implications of Nanotechnology  
 Evaluating nutrient trading options in the Ohio River Basin  
 Scientific advisor and moderator of the Santa Clara River Nutrient TMDL  
 Characterizing mercury loading in the Russian River watershed  
 On-site solutions for current and legacy pesticides in the Santa Clara River  
 Implementation plan for PCB Management in San Francisco Bay  
 Newport Bay: Watershed-scale management of pesticide loading  
 Developing management strategies for nutrients in the Napa River watershed  
 Remediation of Pesticides and Restoration of South Ormond Beach Wetland  
 Impact of California Wineries on the Environment

## Courses at the Bren School of Environmental Science & Management:

ESM 202 Environmental Biogeochemistry  
 ESM 222 Fate & Transport of Pollutants in the Environment  
 ESM 223 Soil and Groundwater Quality Management  
 ESM 224 Sustainable Management of Watershed Quality