Kevin E. Lansey

Professor and Department Head
Department of Civil Engineering and Engineering Mechanics
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Education

Ph.D. – Civil Engineering - The University of Texas at Austin (1984-1987)
Dissertation: Optimal Design of Large Scale Water Distribution Systems under Multiple Loads - Advisor: Larry Mays

M.S. – Civil Engineering - Virginia Polytechnic Institute and State University (1981-82)
Thesis: Determining Overland Flow Hydrographs from Sections of Nonuniform Width
Advisor: James Wiggert

B.S. – Forest Engineering - State Univ. of New York--College of Environmental Science and Forestry (ESF), Syracuse, New York (1979-1981)
Montclair State College, Montclair NJ (1977-1979)

Employment

Head, Department of Civil Engineering & Engineering Mechanics, University of Arizona, 7/2008-present
Professor, Department of Civil Engineering & Engineering Mechanics, University of Arizona, 7/2002-present
Associate Professor, Department of Civil Engineering & Engineering Mechanics, University of Arizona, 7/1994-2002
Assistant Professor, Department of Civil Engineering & Engineering Mechanics, University of Arizona, 9/1990-6/1994
Adjunct Assistant, Associate and Full Professor, Department of Hydrology and Water Resources, University of Arizona, 1993-present.
Assistant Professor, School of Civil Engineering, Oklahoma State University, 1987-1990.
Graduate Research Assistant, The University of Texas at Austin, 1984-1987.
Water Resources Planner, U.S. Army Corps of Engineers, Philadelphia, Pennsylvania, 1983.
Graduate Assistant, Virginia Polytechnic Institute, 1981-1982.
Staff Engineer, Woodward Clyde Consultants, Wayne, New Jersey, Summer 1981.

Honors and Awards

- Best publication award in Environment and Sustainability for Zhang, W. et al, "Reclaimed Water Network Design under Temporal and Spatial Growth and Demand Uncertainties," *Environmental Modeling & Software* (2016). Institute of Operations Research and Management Science (INFORMS) Energy, Natural Resources, and the Environment (ENRE) – for the best Operations Research/ Management Science paper published in the last few years in the area of Environment and Sustainability.
- Outstanding reviewer ASCE JWRPM (2013)
- Best paper award WDSA2008 – Romero-Gomez et al., Axial Dispersion in a Pressurized Pipe under Various Flow Conditions.
- Outstanding Honors College Faculty Member (2008)
- Excellence in Engineering Education Award – MWH Soft (2005)

- ASCE Huber Civil Engineering Research Prize for Young Researchers (2002)
- AWPCA - Quentin Mees Research Award (with David Quanrud and Robert Arnold) (2002)
- Outstanding Reviewer (Journal of Environmental Engineering) (2002, 2004)
- Attendee, NAE 8th Frontiers of Engineering Symposium, Irvine, CA, Sept. (2002)
- Udall Center Fellowship (1997)
  The Udall Center and the fellowship program focuses on studies in public policy. I received a one-semester fellowship for my sabbatical period. My work was related to water resource management. The fellowship included a stipend and use of the Udall Center resources.
- Certificate of Recognition for Excellence at the Student Interface-College of Engineering and Mines (UA CoEM) (1996)
- Senior Award presented by UA CE graduating class of 1994
- Summer Faculty Research Associateship, Dept. of The Army, US Army Research Office, Summer 1994, Institute of Water Resources, Alexandria, VA.
- Outstanding Faculty Award (1993, 2007)

Service Activities (since 1995)
Intramural
Served as Department Head – 2008 - date

Departmental Level Service (CEEM – Civil Engineering and Engineering Mechanics)
Three year review committee (for Dr. B. Nijssen)
CEEM Centennial Organizing and Exploratory Committees (2004-2005)
Dept. Head review committee (for Dr. J. Valdes, Spring 2003)
Search committees (Civil Engineering and Engineering Mechanics (CEEM) Department Head (1997), Transportation faculty position (2001, chair), Water Resources faculty position (2001, 2005))
SCE Student Chapter Faculty Advisor (9/95-12/98)
CEEM Undergraduate Studies Committee (chair 1996-98, member 1999-2001)
CEEM Graduate Curriculum Studies Committee (1999-2001)
CEEM Computing Committee (1994-98, chair, 1996-98)
CEEM Curriculum Review Committee (1996, 1997 (chair))
CEEM Graduate Student Council faculty representative (1999)

College/University Level Service (CoEM – College of Engineering and Mines)
Dean review committee (for Dr. T. Peterson, Spring 2004)
Member, College Advisory Council (2001-4) (elected by CEEM faculty)
Chair, CoEM ABET Implementation committee (1996-1999)
Chair, CoEM committee on Continuous Improvement of the Undergraduate Programs (1999)
Member, CoEM Team 102 - Advisory Committee for ENGR 102 (1994-97)
Member, CoEM undergraduate studies committee (AY96-97)

Dept. Head review committee (Dr. Slack, Ag, and Biosystems Engr., College of Ag., 2001)

Assisted with university accreditation preparations for North Central Association (met with preparation committee, made presentations on CoEM accreditation experience to departments)

Extramural
Professional affiliations
American Society of Civil Engineers (ASCE)
American Geophysical Union (AGU)

Local/State

Chairman, Past Chair, and co-organizer of Arizona Section-Water Resources Technical Committee (1995-96, member 1997-2001)

National/International

Technical review/advisory board for the Conference on Computers in the Water Industry (2003, 2004, 2005)

International advisory board for the 2008, 2012, 2014 and 2016 Water Distribution System Analysis Symposium

Editorial Board Member, Engineering Optimization (2005-date)

Associate Editor, ASCE Journal of Water Resources Planning and Management, (1995-2000)

Co-editor, WRPM Special Issue on Water Distribution Systems (published August 2000)

Editorial committee - Seventh IAHR International Symposium on Stochastic Hydraulics (7/1996)

Chairman, Task Committee on Integration of Reliability, Uncertainty, and Optimization in Hydraulics, ASCE, 10/92-9/95.

Member, Task Committee on System methods for calibration, data assimilation, and uncertainty analysis in water resources models, 10/03-06

Technical Committee for International Conference on Computing and Control for the Water Industry (9/99)

Member, Technical conference organizing committee for 2002 ASCE Conference on Water Resources Planning and Management – Water distribution sessions

Corresponding Member on the following ASCE standing committees:
Technical Committee on Probabilistic Approaches to Hydraulics (ongoing)
Water Resources Systems Technical Committee (ongoing)
Water Distribution Systems (ongoing)

Prepared ASCE Huber Research Prize nominations for Y.-K. Tung (1995) and C. S. Melching (2001). Both nominees won the award.

Prepared winning nomination packages for L. W. Mays for the ASCE Julian Hinds (2014) and UCOWR Warren A. Hall Medal (2015).

Prepared ASCE EWRI Service to the Profession Award nomination for Lindell Ormsbee (2008)

Chaired sessions at IAHR Symposium on Stochastic Hydraulics (1996), ASCE Water Resources Planning and Management (1998, 1999, 2000, 2001. 2003, 2004), ASCE Water Distribution Systems Analysis Symposium (2006)

Invited and attended Joint CDC and EPA Workshop on Developing Drinking Water Distribution Network Tracer Data Analysis Techniques (November 2004)

Contributed definitions to American Meteorological Society “Glossary of Meteorology”, Second Edition, 2000.

Refereed articles for Water Resources Research, the Journal of Water Resources Planning and Management, the Journal of Environmental Engineering, Water Resources Bulletin, Civil Engineering Systems, the Journal of Hydraulic Engineering, Environmental Modeling and Software, Urban Water, Hydroinformatics, and other journals.

Reviewed proposals for Australian Research Council, Canadian Research Council, National Science Foundation general and career awards.

Taught PE review session on Hydraulics and Hydrology for So. Az. ASCE Younger Member Forum (Fall 2006, Spring 1995, Fall 1995 and Spring 1996, Fall 2003). Held F.E. review sessions on Hydraulics (Spr. 2003, Fall 2004, annually since 2005)

Conference Organization

Chair, 10th Water Distribution Systems Analysis Symposium, September, 2010, 148 papers and presentations, proceedings published by ASCE.

Chair, Second NSF Engineering Frontiers in Research and Innovation – Resilient Sustainable Infrastructures (EFRI-RESIN) workshop on Infrastructure Sustainability, Resilience, and Robustness, January 13-14, 2011,Tucson, Arizona.

Chair, U.S.-Iran Symposium on Resilient Cities – held at the National Academy of Sciences, Irvine, CA, June 16-18, 2014 with companion meeting in Tehran, Iran, Sept. 2014, sponsored by the University of Arizona, Sharif University of Technology, and the National Academies of Sciences (33 presentations).

Chair, U.S.-Iran Symposium on Climate Change: Impacts and Mitigation – held at the National Academy of Sciences, Irvine, CA, March 30 - April 1, 2015, sponsored by the University of Arizona, the National Academies of Sciences, and the Academy of Sciences of the Islamic Republic of Iran (31 presentations).

Chair, U.S.-Iran Symposium on Wetlands – held at the National Academy of Sciences, Irvine, CA, March 28-30, 2016, sponsored by the University of Arizona, Sharif University of Technology, and the National Academies of Sciences (28 presentations).

Publications

Textbooks

Lansey, K. and P. Boulos, Comprehensive Handbook on Water Quality Analysis for Distribution Systems, MW Soft, Inc., 2005.

Boulos, P., K. Lansey, and B. Karney, Comprehensive Water Distribution Systems Analysis Handbook for Engineers and Planners, MW Soft, Inc., 2nd edition, 636 pp., 2006.

Boulus, P., K. Lansey, and B. Karney, Comprehensive Water Distribution Systems Analysis Handbook for Engineers and Planners, MW Soft, Inc., 582 pp., 2004.

Conference Proceedings

Lansey, K., C. Choi, I. Pepper, and A. Ostfeld (editors) (2010). Proceedings of the 12th Water Distribution Systems Analysis Conference, Tucson Arizona, September 2010, 144 papers.

Lansey, K., H. Vafai, and D. Quanrud (2014). Proceedings of the U.S.-Iran Symposium on Resilient Cities, June 16-18, 296 pp.

Lansey, K., H. Vafai, A. Sorooshian, and D. Quanrud (2015). Proceedings of the U.S.-Iran Symposium on Climate Change: Impacts and Mitigation, March 30/April 1, 266 pp.

Lansey, K., H. Vafai, and D. Quanrud (2016). Proceedings of the U.S.-Iran Symposium on Wetlands, March 28-30, 246 pp.

Monograph Chapters

1. Lansey, K., and L.W. Mays, Reliability Analysis of Water Distribution Systems, Chapter 2, Monograph edited by Larry W. Mays, published by the American Society of Civil Engineers, 1989.

2. Lansey, K., and L.W. Mays, Reliability Analysis of Water Distribution Systems, Chapter 3, Monograph edited by Larry W. Mays, published by the American Society of Civil Engineers, 1989.

3. Lansey, K., and L.W. Mays, Reliability Analysis of Water Distribution Systems, Sections 13.3, 14.1, and 14.2, Monograph edited by Larry W. Mays, published by the American Society of Civil Engineers, 1989.

Textbook Chapters

1. Lansey, K. and L. W. Mays, Hydraulics of Water Distribution Systems, Chapter 9 in Hydraulic Design Handbook, edited by L. Mays, McGraw-Hill, 1999.

2. Lansey, K. and L. W. Mays, Hydraulics of Water Distribution Systems, Chapter 4 in Water Distribution Systems Handbook, McGraw-Hill, 1999.

3. Lansey, K., Optimal Design of Water Distribution Systems, Chapter 7 in Water Distribution Systems Handbook, edited by L. Mays, McGraw-Hill, 1999.

4. Lansey, K., and W. Elshorbagy, Design of Pumps and Pumping Facilities, Chapter 12 in Stormwater Drainage Systems Handbook, edited by L. Mays, McGraw-Hill, 2001.

5. Lansey, K., L. W. Mays and Y. K. Tung, Reliability and Availability Analysis of Water Distribution, Chapter 10 in Hydraulic Design Handbook, edited by L. Mays, McGraw-Hill, 2002. (also appears as Lansey, K., L. Mays, and Y. K. Tung, Reliability and availability analysis of water distribution systems, Chapter 6 in Urban Water Supply Management Tools, edited by L. Mays, McGraw-Hill, 2004.)

Web course

Lansey, K., Fluid Mechanics, a one-unit web-based engineering science course, offered at the University of Arizona as Engineering 211F (completed 2003).

Publications

Refereed Publications

1. Hwang, H. and K. Lansey (2017). "Water Distribution System Classification Using System Characteristic and Graph Theory Metrics," *ASCE J. of Water Res. Plng. And Mngt.*, accepted for publication and available on-line.

2. Hwang, H., K. Lansey, and D. Jung. (2017). "Accuracy of First-Order Second-Moment Approximation for Uncertainty Analysis of Water Distribution Systems," *ASCE J. of Water Res. Plng. And Mngt.*, accepted for publication and available on-line.

3. Huizar, L., K. Lansey and R. Arnold (2017). "SRR metrics,", *Sustainable and Resilient Infrastructures,* accepted for publication and available on-line.

4. Andrade, M, C. Choi, K. Lansey, and D. Jung (2016). "Enhanced artificial neural networks estimating water quality constraints for optimal water distribution system design," *ASCE J. of Water Res. Plng. And Mngt.*, 142(9), Sept.

5. Hagos, M., D. Jung, and K. Lansey (2016). "Optimal meter placement for pipe burst detection in water distribution systems," *J. of Hydroinformatics*, 18(4), 741-756, July.

6. Jung, D., Lansey, K. E., Choi, Y. H., and Kim, J. H. (2016). "Robustness-based optimal pump design and scheduling for water distribution systems." *J.Hydroinf.,* 18(3), 500-513, May.

7. Lan, F., Bayraksan, G., and Lansey, K. (2016). "Reformulation linearization technique based branch-and-reduce approach applied to regional water supply system planning." *Eng.Optimiz.,* 48(3), 454-475, Mar..

8. Yoo, D. G., Jung, D., Kang, D., Kim, J. H., and Lansey, K. (2016). "Seismic Hazard Assessment Model for Urban Water Supply Networks." *J.Water Resour.Plann.Manage.,* 142(2), 04015055.

9. Minsker, B., Baldwin, L., Crittenden, J., Kabbes, K., Karamouz, M., Lansey, K., Malinowski, P., Nzewi, E., Pandit, A., Parker, J., Rivera, S., Surbeck, C., Wallace, W. A., and Williams, J. (2015). "Progress and Recommendations for Advancing Performance-Based Sustainable and Resilient Infrastructure Design." *J.Water Resour.Plann.Manage.,* 141(12), A4015006.

10. Lan, F., W. Lin and K. Lansey (2015), "Scenario-based robust optimization of a water supply system under risk of facility failure, *Environmental Modelling & Software*, 67, May, 160-172.

11. Jung, D. and K. Lansey (2015). "Water distribution system burst detection using a nonlinear Kalman Filter," *J.Water Resour.Plann.Manage.,* 141(5).

12. Mondaca, M., M. Andrade, C. Choi, and K. Lansey (2015). "Development of a cost function of water distribution systems for residential subdivisions, " *Urban Water Journal*, 12(2), 145-153.

13. Hwang, H., K. Lansey, and D. Quintanar (2015). Resilience-based failure mode effects and criticality analysis for regional water supply system, *Journal of Hydroinformatics*, 17(2), 193-210.

14. Jung, D., Kang, D., Liu, J., and K. Lansey, (2015). Improving the rapidity of responses to pipe burst in water distribution systems: a comparison of statistical process control methods, *Journal of Hydroinformatics*, 17(2), 307-328.

15. Jung, D., Kang, D., J-H. Kim, and K. Lansey, (2014). Robustness-Based Design of Water Distribution Systems, *J.Water Resour.Plann.Manage.,* 140(11).

16. Kang, D. and Lansey, K. (2014). "Multiperiod Planning of Water Supply Infrastructure Based on Scenario Analysis." *J.Water Resour.Plann.Manage.,* 140(1), 40-54.

17. Kang, D. and Lansey, K. (2014). "Novel approach to detecting pipe bursts in water distribution networks." *J.Water Resour.Plann.Manage.,* 140(1), 121-7.

18. Pasha, M. F. K. and K. Lansey (2014**).** Strategies to Develop Warm Solutions for Real-Time Pump Scheduling for Water Distribution Systems, Water Resources Management, September 2014, 28(12), 3975-3987.

19. Andrade, M. A., Doosun Kang, Choi, C. Y., and Lansey, K. (2013). "Heuristic Postoptimization Approaches for Design of Water Distribution Systems." *J.Water Resour.Plann.Manage.,* 139(6), 387-95.

20. Du, F., Woods, G. J., Kang, D., Lansey, K. E., and Arnold, R. G. (2013). "Life Cycle Analysis for Water and Wastewater Pipe Materials." *Journal of Environmental Engineering-ASCE,* 139(5), 703-711.

21. Kang, D., and Lansey, K. (2013). "Scenario-Based Robust Optimization of Regional Water and Wastewater Infrastructure." *J.Water Resour.Plann.Manage.,* 139(3), 325-338.

22. Woods, G. J., Kang, D., Quintanar, D. R., Curley, E. F., Davis, S. E., Lansey, K. E., and Arnold, R. G. (2013). "Centralized versus Decentralized Wastewater Reclamation in the Houghton Area of Tucson, Arizona." *Journal of Water Resources Planning and Management-ASCE,* 139(3), 313-324.

23. Zhang, W., Chung, G., Pierre-Louis, P., Bayraksan, G., and Lansey, K. (2013). "Reclaimed water distribution network design under temporal and spatial growth and demand uncertainties." *Environmental Modelling & Software,* 49 103-117.

24. Zhuang, B., Lansey, K., and Kang, D. (2013). "Resilience/Availability Analysis of Municipal Water Distribution System Incorporating Adaptive Pump Operation." *Journal of Hydraulic Engineering-ASCE,* 139(5), 527-537.

25. Kang, D., and Lansey, K. (2012). "Dual Water Distribution Network Design under Triple-Bottom-Line Objectives." *Journal of Water Resources Planning and Management-ASCE,* 138(2), 162-175.

26. Kang, D., and Lansey, K. (2012). "Revisiting Optimal Water-Distribution System Design: Issues and a Heuristic Hierarchical Approach." *Journal of Water Resources Planning and Management-ASCE,* 138(3), 208-217.

27. Ostfeld, A., et al (2012). "Battle of the Water Calibration Networks." *Journal of Water Resources Planning and Management-ASCE,* 138(5), 523-532.

28. Pasha, M. F. K., and Lansey, K. (2012). "Effect of Data Collection on the Estimation of Wall Reaction Coefficients for Water Distribution Models." *Journal of Water Resources Planning and Management-ASCE,* 138(6), 614-623.

29. Scott, C. A., Bailey, C. J., Marra, R. P., Woods, G. J., Ormerod, K., and Lansey, K. (2012). "Scenario Planning to Address Critical Uncertainties for Robust and Resilient Water-Wastewater Infrastructures under Conditions of Water Scarcity and Rapid Development." *Water,* 4(4), 848-868.

30. Brand, L. A., Stromberg, J. C., Goodrich, D. C., Dixon, M. D., Lansey, K., Kang, D., Brookshire, D. S., and Cerasale, D. J. (2011). "Projecting avian response to linked changes in groundwater and riparian floodplain vegetation along a dryland river: a scenario analysis." *Ecohydrology,* 4(1), 130-142.

31. Kang, D., and Lansey, K. (2011). "Demand and Roughness Estimation in Water Distribution Systems." *Journal of Water Resources Planning and Management-ASCE,* 137(1), 20-30.

32. Romero-Gomez, P., Lansey, K. E., and Choi, C. Y. (2011). "Impact of an incomplete solute mixing model on sensor network design." *J.Hydroinf.,* 13(4), 642-651.

33. Kang, D.S. and K. Lansey, 2010. "Optimal meter placement for water distribution system state-estimation," ASCE Journal of Water Resources Planning and Management, 136(3), pp. 337-347, DOI: 10.1061/(ASCE)WR.1943-5452.0000037, May.

34. Kang, D.S. and K. Lansey, 2010."Real-Time Optimal Valve Operation and Booster Disinfection for Water Quality in Water Distribution Systems," ASCE Journal of Water Resources Planning and Management, 136(4), pp. 463-473, DOI: 10.1061/(ASCE)WR.1943-5452.0000056, July.

35. Kang, D.S. and K. Lansey, 2010." Filtering Bad Measurement Data for Water Distribution System Demand Estimation," ASCE Journal of Water Resources Planning and Management, 136(4), pp. 512-517, DOI: 10.1061/(ASCE)WR.1943-5452.0000051, July.

36. Brookshire, D., D. Goodrich, M. Dixon, L. Brand, K. Benedict, K. Lansey, J. Thacher, C. Broadbent, S. Stewart, M. McIntosh, D. Kang (2010). "Ecosystem Services and Reallocation Choices: A Framework for Preserving Semi-Arid Regions in the Southwest," Journal of Contemporary Water Research and Education, 70(1), March, 60-74.

37. Kang, D. and K. Lansey, (2009). "Real-Time Demand Estimation and Confidence Limit Analysis for Water Distribution Systems," Journal of Hydraulic Engineering-ASCE, 135(10), pp. 825-837, DOI: 10.1061/(ASCE)HY.1943-7900.0000086, Oct.

38. Pasha, M. F. and K. Lansey, 2010. "Effect of Parameter Uncertainty on Water Quality in Distribution Systems – Case study," Journal of Hydroinformatics, 12(1), pp. 1-21, DOI: 10.2166/hydro.2010.053, Jan.

39. Serrat-Capdevila, A., A. Browning-Aiken, K. Lansey, T. Finan, and J. Valdes, 2009. "Increasing Socio-Ecological Resilience by placing science at the decision table, *The role of the San Pedro Basin Decision Support System Model (Arizona).*" Ecology and Society, 14(1), Article 37. April.

40. Kang, D. S., M. F. Pasha, and K. Lansey, 2009. "Approximate methods for uncertainty analysis of water distribution systems," Urban Water, 6(3) available on-line.

41. Sumer, D. and K. Lansey, 2009. "WDS calibration and assessment for alternative modeling objectives," Urban Water, 6(4) available on-line.

42. Pasha, M. F. and K. Lansey, 2009 "Water Quality Parameter Estimation for Water Distribution Systems," Civil and Environmental Engineering Systems, 26(3), p. 231-248.

43. Sumer, D. and K. Lansey, 2009. "Effect of uncertainty on water distribution system model design decisions," ASCE Journal of Water Res. Plng and Mngt,135(1), 38-47.

44. Chung, G., K. Lansey and G. Bayraksin, 2009. "Reliable water supply design under uncertainty," Environmental Modeling and Software, 24(4), April, 449-462.

45. Chung, G. and K. Lansey, 2009. "Application of the SFLA Method for the Optimization of a General Large Scale Water Supply System," Water Resources Management,23(4), March, 797-823.

46. Williams, A., K. Lansey, and J. Washburne, 2009. "A Dynamic Simulation Based Water Resources Education Tool," Journal of Environmental Management, 90(1), 371-482, Jan..

47. Chung, G., K. Lansey, P. Blowers, P. Brooks, W. Ela, S. Stewart, and P. Wilson, 2008. "A General Water Resources Planning Model using Dynamic Simulation: Evaluation of Decentralized Treatment," Environmental Modeling and Software, 23(7) July, 893-905.

48. Lansey, K., D. Delgado, and Q. Banihani, 2007. Discussion of "Mixed-Integer approach for obtaining unique solutions in source inversion of water networks" by Laird et al, to appear in *ASCE Journal of Water Resources Planning and Management*, 133(6), December, pp. 573-575.

49. Chung, G., K. Lansey, and P. Boulos, 2007. "Steady-state water quality analysis for pipe network systems," Journal of Environmental Engineering, ASCE, 133(7), July, 777-782.

50. Lansey, K., M. F. Pasha, S. Pool, W. Elshorbagy, and J. Uber, 2007. "Locating satellite booster disinfectant stations," Journal of Water Resources Planning and Management, ASCE, 133(4), July/August, 2007, p 372-376.

51. Sumer, D., J. Gonzalez, and K. Lansey, 2007. "Real-Time Detection of Sanitary Sewer Overflows Using Neural Networks and Time Series Analysis, Journal of Environmental Engineering, 133(4), April, pp. 353-363.

52. Goldberg, J., K. Lansey and M. Hickman, 2007. "Web- Based Engineering Economics – A Multi- semester Experiment," International Journal of Engineering Education, 23(2), 349-360.

53. Hafer, J., R. Arnold, K. Lansey, and P. Chipello 2006., "Nitrogen transformations during soil-aquifer treatment of wastewater effluent-oxygen effects in field studies," ASCE Journal of Environmental Engineering, 132(10) October, 1298-1306.

54. Yoo, H., J. Miller, K. Lansey, and M. Reinhard, 2006. "EDTA, NTA, Alkylphenol Ethoxylate and DOC attenuation during soil aquifer treatment," ASCE Journal of Environmental Engineering, 132(6), June, 674-682.

55. Quast, K., K. Lansey, R. Arnold, R. Bassett, and M. Rincon, 2006. "Boron isotopes as an artificial tracer," Ground Water, 44(3), May/June, 453-466.

56. Eusuff, M. and K. Lansey, 2006. "Shuffled frog leaping algorithm: A memetic meta-heuristic for combinatorial optimization," Engineering Optimization, 38(2), March, 129-154.

57. Abu Sier, D. and K. Lansey "Monitoring sewage networks for sanitary sewer overflows *Civil Engineering and Environmental Systems*, 22(2), June, 2005, p 123-132.

58. Conroy, O., Quanrud, D.M., Ela, W.P., Wicke, D., Lansey, K.E., and Arnold, R.G. 2005. Fate of Wastewater Effluent hER-Agonists and -Antagonists during Soil Aquifer Treatment. *Environmental Science and Technology*. 39(7):2287-2293.

59. Goldberg, J., and K. Lansey, "Web-based alternatives for learning engineering science," Computers in Education Journal, 14(4), Oct/Dec, 2004, 2-11.

60. Eusuff, M., and K. Lansey, "Optimal operation of artificial groundwater recharge systems considering water quality transformations," Water Resources Management, 18(4), Aug. 379-405.

61. Quanrud, D., J., Karpiscak, M.M., Zhang, J., Lansey, K.E., and Arnold, R.G., "Transformation of effluent organic matter during subsurface wetland treatment in the Sonoran Desert," Chemosphere, 54(6), Feb. 2004, pp. 777-788.

62. Quanrud, D., Quast, K., Conroy, O., Karpiscak, M., Gerba, C., Lansey, K., Ela, W. and Arnold, R., "Estrogenic Activity and Volume Fraction of Wastewater Origin in Monitoring Wells Along the Santa Cruz River, Arizona," Groundwater Monitoring and Remediation, 24(2), Spring, 86-93, 2004.

63. Quanrud, D.M., Hafer, J., Karpiscak, M.M., Zhang, J., Lansey, K.E., and Arnold, R.G. 2003. "Fate of Organics during Soil Aquifer Treatment: Sustainability of Removals in the Field." Water Research. 37(14), 3401-3411. Also published in the Virtual Journal of Environmental Sustainability, 1(3), 2003, http://www.elsevier.com/vj/sustainability.

64. Eusuff, M. and K. Lansey, "SFLANET: Optimization of water distribution network design using shuffled frog leaping algorithm," ASCE Journal of Water Resources Planning and Management, May 2003.

65. Quanrud, D.M., Arnold, R.G, Lansey, K.E., Begay, C., Ela, W., and Gandolfi, A.J. "Fate of organic matter during soil aquifer treatment: biodegradability, chlorine reactivity, and genotoxicity," Journal of Water and Health, 1(1), 2003.

66. Lansey, K., I. Ahmed, and W. El-Shorbagy, "Closure to "Calibration Assessment and Data Collection for Water Distribution Networks" by K. E. Lansey, W. El-Shorbagy, I. Ahmed, J. Araujo, and C. T. Haan", ASCE Journal of Hydraulic Engineering, 128(12), Dec. 2002, 1106-1107.

67. Mallick, K., I. Ahmed K. Lansey, and K. Tickle, "Determining parameter dimensions for water distribution networks," ASCE Journal of Water Resources Planning and Management, 128(2), March 2002, 130-139.

68. Shinstine, D., I. Ahmed, and K. Lansey, "Reliability/Availability Analysis of Municipal Water Distribution Networks: Case Studies," ASCE Journal of Water Resources Planning and Management, 128(2), March 2002, 140-151.

69. Ostfeld, A., M. Eusuff, and K. Lansey, "HANDSS: the Hula Aggregated Numerical Decision Support System," Journal of Geographic Information and Decision Analysis (electronic peer-reviewed journal), 5(1), **http://www.geodec.org/**, 2001 .

70. Quanrud, D., M. Karpiscak, K. Lansey, and R. Arnold, "Behavior of organic carbon during subsurface wetland treatment in the Sonoran Desert," Water Science and Technology, 44(11-12), 2001, 267-272.

71. Elshorbagy, W., K. Lansey, and D. Slack, "Optimal sizing of irrigation delivery systems using a two-stage stochastic programming approach," Civil Engineering and Environmental Systems, 18, 2001, 331-362.

72. Wang, M. L., K. Lansey, and D. Yakowitz, "An approximate method for solving stochastic two-stage programming problems," Engineering Optimization, 33, 2001, pp. 279-302.

73. Lansey, K., W. El-Shorbagy, I. Ahmed, J. Araujo, and C. Haan, "Calibration Assessment and Data Collection for Water Distribution Pipe Network Models," ASCE Journal of Hydraulic Engineering, 127(4), April, 2001, pp. 270-279.

74. Sugiyama, H., M. Kadoya, A. Nagai, and K. Lansey, "Verification and application of regional equations for the storage function runoff model," Journal of the American Water Resources Association, 35,1999, pp. 1147-1157.

75. Ostfeld, A., M. Eusuff, and K. Lansey, "Analytical groundwater flow solutions for channel-aquifer interaction," ASCE Journal of Irrigation and Drainage, 125(4), 1999, 196-202.

76. Sugiyama, H., M. Kadoya, A. Nagai, and K. Lansey, "Evaluation of the Storage Function Model Parameter Characteristics," Journal of Hydrology, 191,1997, pp. 332-348.

77. Elshorbagy, W., K. Lansey and D. Yakowitz, "Design of Engineering Systems using Stochastic Decomposition: Water supply planning application," Engineering Optimization, 27, 1997, pp 279-302.

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117. Quanrud, D., Karpiscak, K. Lansey, and R. Arnold, "Effect of subsurface wetland treatment on Trihalomethane formation and character of effluent organic matter," in the Proceedings of the 10th Biennial Symposium on Artificial Recharge of Groundwater, Tucson, AZ, June 2001.

118. Davies, D. and K. Lansey, "Perched mounding during artificial recharge at the Sweetwater Underground Storage Recovery Facility," in the Proceedings of the 10th Biennial Symposium on Artificial Recharge of Groundwater, Tucson, AZ, June 2001 (also presented at the Arizona Hydrological Society, Sept., 2001).

119. Yalcin, D., K. Lansey, R. Sloan, R. Decker and J. Schladweiler, "Remote detection of surcharged sewer overflows," in the Proceedings of IAHR/ASCE Third International Symposium on Environmental Hydraulics, Tempe, AZ, Dec. 2001.

120. Goldberg, J., M. Hickman, K. Lansey, "Web-Based Engineering Science Course Modules Overview and an Experiment in Engineering Economics," Annual Conference of the Amer. Society of Engineering Education, Albuquerque, NM, June, 2001.

121. Quanrud, D.M., Karpiscak, M.M., Lansey, K.E., and Arnold, R.G. 2000. Behavior of organic carbon during subsurface wetland treatment in the Sonoran desert. In: *Proceedings, 7th International Conference on Wetland Systems for Water Pollution Control.* Lake Buena Vista, Florida, November 11-16, 2000. pp. 619-627.

122. Ahmed, I., and K. Lansey, "Optimal Operation of the Salt River Project Multireservoir System under Uncertainty," presented and published in the Proceedings of the ASCE 2000 Joint Conference in Water Res. Eng. and Water Res. Plng. and Mngt, Minneapolis, MN, August, 2000.

123. Eusuff, M., A. Ostfeld, and K. Lansey, "An Overview of HANDSS: Hula Aggregated Numerical Decision Support System," presented and published in the Proceedings of the ASCE 2000 Joint Conference in Water Res. Eng. and Water Res. Plng. and Mngt, Minneapolis, MN, August, 2000 (refereed conference paper).

124. Shinstine, D., I. Ahmed, and K. Lansey, "How Reliable are Water Distribution Networks," presented and published in the Proceedings of the ASCE 2000 Joint Conference in Water Res. Eng. and Water Res. Plng. and Mngt, Minneapolis, MN, August, 2000.

125. Wegley, C., M. Eusuff, and K. Lansey, "Determining Pump Operations using Particle Swarm Optimization," presented and published in the Proceedings of the ASCE 2000 Joint Conference in Water Res. Eng. and Water Res. Plng. and Mngt, Minneapolis, MN, August, 2000.

126. Fassnacht, S., R. Bales, K. Lansey, and J. Valdes, "Southwest Regional Science Application Center (RESAC) – Research Directions," IAHS Specialty Conference on Remote Sensing in Hydrology, Sante Fe, NM, June, 2000.

127. Lansey, K., J. Goldberg, P. Lever, D. Lynch, and E. Nowatzki, "Overview of Assessment in CoEM," presented at Strategies for Success, Assessing Learning and Teaching at the University of Arizona, Jan. 2000.

128. Goodwin, K., C. Rentas, K. Lansey, B. Imam, and S. Sorooshian, "Estimating uncertainty in hydrologic model predictions," presented at the 26th annual conference of the ASCE Water Resources Planning and Management Division, June, 1999.

129. Ahmed, I. and K. Lansey, "Analysis of Unsteady flow in networks using a gradient algorithm based method," presented at the 26th annual conference of the ASCE Water Resources Planning and Management Division, June, 1999.

130. Davies, D. and K. Lansey, "A field study on groundwater mounding below recharge infiltration basins," presented at the Arizona Water Pollution Control Association Annual Meeting, May, 1999.

131. Ostfeld, A., K. Lansey, and T. Maddock, " Development of a decision support system for the Lake Hula project" Proceedings of the annual conference of the Israeli Association for Water Resources, EYAL, Jerusalem, November, 1999. (Also presented at the Conference on "Recommendations for monitoring and operation of the Hula project, in Tel-Hai, November 1997 and at a seminar at the Water Research Institute at the Technion, Haifa Israel, Nov. 1998)

132. Hafer, J., R. Arnold, and K. Lansey, "Nitrogen transformations in soil during soil aquifer treatment of chlorinated secondary wastewater," in the Proceedings to 9th Biennial Symposium on the Artificial Recharge of Groundwater – Artificial Recharge and Integrated Water Management, Tempe, AZ, June, 1999, p. 255-264.

133. Goldberg J., and K. Lansey "ABET 2000 Experiences at the University of Arizona", American Society of Engineering Education Conference, Charlotte, NC, June, 1999.

134. Ahmed, I., K. Lansey, and J. Araujo, "Data collection for water distribution network calibration," in Proceedings from Computing and Control for the Water Industry, Exeter, UK, Sept. 1999. Pp. 271-278. (refereed conference paper)

135. Quanrud, D. et al, "Soil-aquifer treatment research at the University of Arizona: An overview," presented at the specialty conference on artificial recharge, hosted by the Univ. of Calif.-Davis, Monterey, CA, June 1998.

136. Goodwin, K., K. Lansey, B. Imam, and S. Sorooshian, "Urban hydrologic modeling using remotely sensed data," Poster at American Geophysical Union meeting, Boston, MA, June 1998.

137. Ostfeld, A., K. Lansey, Y. Salingar and T. Maddock, "On development of a decision support system for the Lake Hula project, ESRI (Environmental Systems Research Institute, Inc.) International User Conference, San Diego, July 8-11,1997.

138. Pool, S. and K. Lansey, “Locating and operating disinfection boosters in water networks,” Proceedings of the ASCE conference on Water Resources Planning and Management, May 1997.

139. Lansey, K., and M. Wang, “Operating a recharge site to avoid groundwater mounding,” presented at Water Reuse 96, San Diego, CA, Feb. 1996.

140. Elshorbagy, W., K. Lansey, and D. Yakowitz, “Design and operation of engineering systems using regularized stochastic decomposition,” published and presented at the Seventh International symposium on Stochastic Hydraulics, Mackay, Queensland, Australia, 29-31 July 1996.

141. Wang, M. and K. Lansey, “Optimal well locations for groundwater mound control,” North American Water and Environment Congress, San Diego, CA, June, 1996.

142. Yakowitz, D., W. Elshorbagy, and K. Lansey, "Modeling and Solving Water Resources Engineering Design Problems as Stochastic Programs to Account for an Uncertain Future," Proceedings of the ASCE conference on Risk-Based Decision Making in Water Resources VII, Santa Barbara, CA, Oct. 1995.

143. Lansey, K., "Flood Mitigation Impacts of a Fringe Wetland," Proceedings of the National Interagency Workshop on Wetlands: Technology Advances for Wetlands Science, New Orleans, LA, April, 1995.

144. Lansey, K., W. Elshorbagy, and D. Yakowitz, "Design of Engineering Systems using Stochastic Optimization," presented at the 1995 ASCE Water Resources Engineering Conference, San Antonio, TX, August, 1995.

145. Johnson, V., M. Conklin, B. Ganapol, J. Goldberg, K. Lansey, K. Mylrea, J. Peck, "The Freshman Engineering Experience at the University of Arizona," presented at the 1995 ASEE Meeting, Anaheim, CA, June.

146. Mallick, K. and K. Lansey, "Determining Optimal Parameter Dimensions for Water Distribution Network Models," presented at the 1994 ASCE conference on Water Resources Planning and Management, Denver, May.

147. El-Shorbagy, W. and K. Lansey, "Non-conservative Water Quality Modeling in Water Systems," presented at the 1994 AWWA specialty conference on Computers in the Water Industry, Los Angeles, April.

148. Lansey, K., "Integration of Reliability, Uncertainty, and Optimization in Hydraulic Systems: Classification of Problem Types" presented at the 1994 ASCE conference on Water Resources Planning and Management, Denver, May.

149. Lansey, K., "Integration of Reliability, Uncertainty, and Optimization in Hydraulic Systems: Structural Reliability" presented at the 1994 ASCE conference on Water Resources Planning and Management, Denver, May.

150. Mushtaq, H., L. Mays and K. Lansey, "Optimal Operations of a Wastewater Recharge System," presented and published in the Proceedings of the 1993 Fall American Water Resources Association Meeting, Sept. 1993.

151. Wang, M. and K. Lansey, "Variability in Solutions of Constrained Optimization Problems: Ocean Outfall Design Case," presented and published in the Proceedings of the 1993 ASCE National Conference on Hydraulic Engineering, August, 1993.

152. Lansey, K., K. Agyare, and K. Awumah, "Design and Operation of Water Distribution Systems," presented at the 1993 Arizona Water Pollution Control Association, Tucson, May, 1993.

153. Zhong, Q., and K. Lansey, "Optimal Pump Scheduling for Water Distribution Systems," presented at the 1993 Fall meeting of ORSA/TIMS, Phoenix, AZ.

154. Awumah, K. and K. Lansey, "Efficient Pump Station Operations with a Pump Switching Constraint," presented and published in the Proceedings of the 1992 ASCE Water Resources Planning and Management Conference, Baltimore, Md., August, 1992.

155. Mushtaq, H., L. Mays, and K. Lansey, "Optimal Operations of Recharge Basins," presented at the 1992 ASCE Water Resources Planning and Management Specialty Conference, Baltimore, Md., August, 1992.

156. Lansey, K., Q. Zhong, K. Awumah, and I. Goulter, "A Supply Based Measure for Reliability of Water Distribution Systems," presented and published in the Proceedings of the Sixth IAHR International Symposium on Stochastic Hydraulics, Taipei, Taiwan, 1992.

157. Araujo, J., and K. Lansey, "Uncertainty Quantification in Water Distribution Parameter Estimation," presented at the 1991 National Hydraulic Engineering Conference, ASCE, Nashville, TN.

158. Zhong, Q., and K. Lansey, "A Comparison of Two Large Scale NLP Strategies for Determining Optimal Pump Station Controls," presented at the 1991 ASCE Water Resources Planning and Management conference.

159. Zhang, Y., K. Lansey, and Q. Zhong, "Stochastic Optimization for Long Term Operations of Multiple Reservoirs: A New Approach," presented at the 1991 ASCE Water Resources Planning and Management conference.

160. Menon, H. and K. Lansey, "Maintenance Scheduling for Water Resources Systems: An Application to Advance Maintenance Dredging," published in the Hydraulic Engineering, Proceedings of the 1990 ASCE Nat. Conf. on Hydraulic Engineering.

161. Lansey, K. and C. Basnet "A Design Process for Water Distribution Systems including Optimization," presented and published in the Proceedings of the 1990 ASCE Water Resources Planning and Management Division Specialty Symposium on Water Resources Infrastructure, pp. 41-47.

162. Lansey, K. and Q. Zhong, "A Methodology for Optimal Pump Operations." presented at and published in the proceedings of the 1990 ASCE National Specialty Symposium on Water Resources Infrastructure, Forth Worth, Texas, April, 1990, pp. 58-61.

163. Zhong, Q., and K. Lansey, "Optimal Operations of Multiple Hydropower Reservoir Systems," presented at and published in the proceedings of the 1990 ASCE National Specialty Conference of

the Water Resources Planning and Management Division, Fort Worth, Texas, April, 1990, pp. 342-346.

164. Cullinane, M.J., K. Lansey, and C. Basnet, "Water Distribution System Design Considering Component Failure During Static Conditions," in Hydraulic Engineering, proceedings from the National Conference on Hydraulic Engineering, edited by Michael Ports, 1989.

165. Cullinane, M.J., K. Lansey, and L. Mays, "Optimal Reliability Based Design of Water Distribution Systems," in Hydraulic Engineering, proceedings from the 1989 National Conference on Hydraulic Engineering, edited by Michael Ports, 1989.

166. Lansey, K., J. Woodburn, L. Mays, and C. Basnet, "An Algorithm for Optimal Rehabilitation Scheduling for Water Distribution Systems," paper presented at the AWWA Symposium. Computers and Automation in the Water Industry, Denver, April, 1989.

167. Lansey, K., "Water Distribution Network Calibration Considering Multiple Loads," paper presented at the ASCE National Specialty Conference of the Water Resources Planning and Management Division, Norfolk, Virginia, June 1988.

168. Lansey, K., and L. Mays, "Optimal Design of Large Scale Water Distribution Systems," paper presented at the ASCE 1987 National Conf. on Hydraulic Eng., Williamsburg, Virginia.

169. Woodburn, J., K. Lansey, and L. Mays, "Model for the Rehabilitation and Replacement of Water Distribution System Components," paper presented at the ASCE National Conference on Hydraulic Engineering, Williamsburg, Virginia, August 1987.

170. Lansey, K., and L. Mays, "A Methodology for Optimal Network Design," paper presented at the ASCE Specialty Conference, "Computer Applications in Water Resources," Buffalo, New York, May 1985.

Miscellaneous report and publications

1. Lansey, K., A. Ostfeld, and T. Maddock III, “Decision Support System for Wetlands and Riparian Zones in Arid Regions - Project summary,” IALC Land Management Workshop, Reno, NV, November, 1999.

2. Witt, A., R. Brink, C. Dol Raj, B. Hadjerioua, K. Lansey and C. Hortsman (2016), Preliminary feasibility study of a hybrid solar and modular pumped storage hydro system at Biosphere 2, ORNL/TM-2016/591, Sept., 22 pp.

Grants and Contracts

Research Grants

International

- Drinking water supply systems security using online contamination monitoring
  - NATO
  - 2006-2008
  - NATO lead with A. Ostfeld, I. Schechter, and Y. Kashi (Technion) and D. Walt (UMass)
  - 271000 Euro

Federal

- Green and Resilience Infrastructures
  - US Dept. of State
  - 9/2015-9/2017
  - $125000

- US-Iran Collaboration for Resilient Cities Symposium
  - National Academies of Science
  - $70K
  - 2014-2016
  - Principal Investigator with Hassan Vafai

- EFRI-RESIN - Optimization of conjunctive water supply and reuse systems with distributed treatment for high-growth water-scarce regions
  - National Science Foundation,
  - $2M
  - 2008-2012
  - Principal Investigator with Robert Arnold, Guzin Bayraksan, Christopher Choi, Christopher Scott, and Stephen Davis (Malcolm Pirnie)

- Coupled Natural and Human Systems - Strengthening Resilience of Arid Region Riparian Corridors: Ecohydrology and Decision-Making in the Sonora and San Pedro Watersheds
  - NSF
  - $1.4M
  - 2010-2014
  - Co-Principal Investigator

- Approaches to Maintain Consistently High Quality Recycled Water in Storage and Distribution Systems
  - WateReuse Foundation (through collaborator HDR Consultants)
  - 2009-11
  - Principal Investigator
  - $114,000

- Center for Sustainability of Semi-Arid Hydrology of Riparian Areas (SAHRA)
  - National Science Foundation,
  - Center funding approx. $14M
  - 2000-2010
  - Investigator (supports one graduate student and faculty summer salary)
- Monitoring and prediction of water distribution/availability in semi-arid regions
  - National Aeronautic and Space Agency
  - June 2001 – June 2004
  - Co-PI with S. Sorooshian (HWR) and others
  - $2.175 million

- Measurement of hormonal activity and volume contribution of treated wastewater in water from wells along the Santa Cruz R.
  - United States Geological Survey (Section 104),
  - Jan. 2001- Dec. 2001
  - Co-PI with Martin Karpiscak (Arid Lands), Robert Arnold (CHEE), and Charles Gerba (SWS)
  - $14630

- Investigation of Soil Aquifer Treatment for Sustainable Water Reuse
  - US Environmental Protection Agency through the National Center for Sustainable Water Supply (Arizona State University)
  - 1998-2003
  - PI with Robert Arnold (CHEE), Randy Bassett (HWR), Wendell Ela (CHEE), Charles Gerba (SWES)
  - Total support to NCSWS $2.9M, University of Arizona $780000 (Additional approx. $250K is under negotiation - spring 2002)

- Soil Aquifer Treatment for Sustainable Water Reuse
  - US Environmental Protection Agency through the National Center for Sustainable Water Supply (Arizona State University) to the UA NSF Water Quality Center
  - 2001-2
  - PI with Robert Arnold (CHEE), Wendell Ela (CHEE), Charles Gerba (SWES)
  - $90000

- Decision support system for river system management under hydroclimatic variability
  - United States Geologic Survey
  - 1998-2001
  - PI with Juan Valdes (CEEM), Roy Koch (Portland State University) and Hugo Loacigia (UC-Santa Barbara)
  - $147495

- Southwest Regional Earth Science Application Center (RESAC)
  - National Aeronautic and Space Agency
  - 1999-2002
  - Co-PI with Roger Bales (HWR) and others
  - $1,500,000

- Use of remotely sensed data for urban hydrologic modeling
  - National Aeronautic and Space Agency
  - June 1997-June 1998
  - PI with Soroosh Sorooshian (HWR) and George Ball (RNR) (worked in cooperation with the City of Scottsdale, AZ)
  - $150000
- Decision support system for arid land wetland and riparian zones
  - International Arid Lands Consortium
  - May 1996-April 1998
  - PI with Thomas Maddock III (HWR)
  - $75000

- Optimal Control of Pumping Facilities
  - United States Geological Survey, Section 105 program
  - September 1990-February 1993
  - PI
  - $69000

- Operating and Locating Water Recharge-Reuse Facilities
  - US Geological Survey, Section 104 program
  - June 1991-May 1992
  - PI with Larry Mays, Arizona State University
  - $30000

- Evaluation of a Real-Time Flood Forecasting Model
  - Intergovernment Personnel Agreement with the U.S. Corps of Engineers, Tulsa District,
  - June 1989-December 1989
  - PI
  - $14000

- Water Distribution System Reliability-Optimization
  - U.S. Army Corps of Engineers, Waterways Experiment Station, Vicksburg, Mississippi,
  - March 1988-April 1989
  - PI
  - $15000

State/Local/Industry

- Phase II – USPP Decision Support System
  - Dow Aksa
  - 1/2014-5/2017
  - $675,000

- Pumped storage hydropower for storing solar energy at Biosphere 2
  - University of Arizona Green Fund
  - 7/2016-12/2017
  - $37,600

- Phase II – USPP Decision Support System
  - City of Sierra Vista, AZ – Upper San Pedro Partnership
  - 9/2003-9-04
  - $49500

- Simulated Basin Model for Water Resource Planning and Education
  - State of Arizona, Technology and Research Initiative Fund
  - 7/2003-6/2005
  - PI with Co-PIs - Paul Blowers (CHEE), Paul Brooks (HWR), Wendell Ela (CHEE), Steven Stewart (SAHRA/HWR), Paul Wilson (AREC), Farhang Shadman (ERC), Gary Woodard (SAHRA)

- Estrogenic Activity in Reclaimed Water and Stormwater
  - State of Arizona, Technology and Research Initiative Fund
  - 7/2003-6/2006
  - Co-PI with PI- Robert Arnold (CHEE) and David Quanrud (ALS)

- Monitoring collection systems to detect sanitary sewer overflows
  - Pima County Wastewater Management and GLHN consulting engineers
  - January 2001-June 2002
  - PI
  - $59500

- Investigation of Soil-Aquifer Treatment for Sustainable Water Reuse
  - American Water Works Association Research Foundation, Phoenix Area Organization of Local Governments and Los Angeles County Sanitation District
  - October 1996 – June 2000
  - PI with Robert Arnold (CHEE), Randy Bassett (HWR), and Charles Gerba (SWES)
  - $328000

- Water quality monitoring Sweetwater wetlands/infiltration
  - City of Tucson
  - June 1996-June 2000
  - Co-PI with Robert Arnold (CHEE) and Randy Bassett (HWR)
  - $199000

- Operating Recharge Systems to Avoid Mounding
  - Arizona Department of Water Resources
  - December 1995 - December 1997
  - PI
  - $65300

- Unified Approach to Modeling Water Distribution Systems
  - Vice President for Research, University of Arizona
  - June 1996-May 1997
  - PI
  - $5000

- Fuzzy Calibration of Water Distribution Systems
  - Vice President for Research, University of Arizona
  - June 1991-May 1992
  - PI
  - $5000
- Optimal Pump Station Operation of Water Distribution Systems
  - University Center for Water Research, State of Oklahoma
  - July 1989-June 1990
  - PI
  - $20000

- Monitoring and Operation of Water Resources Systems
  - University Center for Water Research, State of Oklahoma
  - August 1988-June 1989
  - PI
  - $20250

Teaching grants

- Engineering Connections Environments: Developing Learner Centered Interfaces to Technical Content Modules
  - ABOR
  - 7/2006-6/2007
  - $49000

- Improvements in Undergraduate engineering education through curriculum and course development feedback processes
  - General Electric Foundation
  - Jan. 1998-Dec. 2001
  - Co-PI with Jeffrey Goldberg (SIE) and John Ramberg (SIE)
  - $450000

- Development of an Undergraduate Computer Aided Design Classroom/laboratory
  - Instructional Computing Grant Program, Provost Office, University of Arizona
  - January 1996
  - Award made to the Dept. of CEEM
  - $35000

- A new outlook on Freshman Engineering education: ENGR 102
  - University of Arizona Vice President for Research, Award for outstanding education course/approach
  - Prepared proposal for Team 102 (oversight committee for course)
  - $75000 (for further course improvements award made to the College of Engineering and Mines)