

C. LARRABEE (LARRY) WINTER

RESEARCH AND PROFESSIONAL

- 2009-Present: University of Arizona, Tucson, AZ
Professor and Head, Department of Hydrology and Water Resources
Professor, Atmospheric Sciences
Member, Steering Committee Program in Applied Mathematics
Adjunct Professor, Department of Mathematics, University of Wyoming
Interim CEO, National Ecological Observatory Network, Boulder, CO
- 2003 – 2009: NCAR, Boulder, CO
Deputy Director
Senior Scientist, Institute for Mathematics Applied to Geoscience, NCAR
- 1990 - 2003: Los Alamos National Laboratory, Los Alamos, NM
Science Advisor, Office of the Governor, State Capitol, Santa Fe, NM
Leader, Computer Research and Applications Group (C3), Computing and Computational Sciences Division
Leader, Geoanalysis Group (EES5), Earth and Environmental Sciences Division
Leader, Applied Mathematics and Statistics Team (T7), Theoretical Division
- 1985 - 1990: SAIC Advanced Computing Division, Tucson, AZ
Chief Scientist
- 1983 - 1985: Idaho State University, Pocatello, ID
Assistant Professor of Mathematics and Computer Science
- 1982 - 1983 University of Arizona, Tucson, AZ
Post-Doctoral Associate, Department of Hydrology and Water Resources

CURRENT POSITIONS

Professor
Department of Hydrology and Water Resources
Joint Appointment Department of Atmospheric Sciences
University of Arizona
Tucson, Arizona

Member
Steering Committee, Program in Applied Mathematics
University of Arizona

Affiliate Scientist
National Center for Atmospheric Research
Boulder, Colorado

Adjunct Professor
Department of Mathematics
University of Wyoming
Laramie, Wyoming

EDUCATION AND TRAINING

- 1982 Ph.D., University of Arizona, Applied Mathematics
Advisors: Charles M. Newman (NAS), Director, Courant Institute of Mathematical Sciences, NYU

C. LARRABEE (LARRY) WINTER

Shlomo P. Neuman (NAE), Regents Professor, Department of Hydrology and Water Resources, University of Arizona

Dissertation: Asymptotic Properties of Diffusion in Random Conductivity Fields

1980 M.S., University of Arizona, Applied Mathematics

1976 M.S., University of Arizona, Geoscience

1970 B.A., University of Arizona, Philosophy and Oriental Studies (South Asia) with honors.

AWARDS

1988 SAIC Publication Prize in Mathematics, Computer Science and Operations Research

1993 Los Alamos National Laboratory Distinguished Performance Award

1997 Bronze Award, Best Story of the Year, Arizona Highways Magazine

HONORS AND MEMBERSHIPS

Phi Kappa Phi, Sigma Xi, American Geophysical Union, Society for Industrial and Applied Mathematics, European Geophysical Society

BOARDS

Past

Member, Editorial Board, Journal of Neural Network Computing (1989-1990)

Member, Executive Committee, SAHRA, NSF Science and Technology Center for Sustainable Hydrology, University of Arizona

Member, Executive Committee, Center for Non-Linear Studies, Los Alamos National Laboratory

Chair, New Mexico EPSCoR Committee

Chair, Advisory Board, National Ecological Observatory Network

Member, New Mexico State Space Center Commission

Member, Advisory Board, SAHRA, NSF Science and Technology Center for Sustainable Hydrology, University of Arizona

Current

Member, Board, of Directors National Ecological Observatory Network

Member, Advisory Committee, Institute of Arctic and Alpine Research (INSTAAR)

Assistant Editor, Water Resources Research, AGU.

STUDENTS AND POST-DOCS

Post-Docs

Regan Murray, Applied Math, UA

Daniel Tartakovsky, Hydrology, UA

Dongxiao Zhang, Hydrology, UA

Selene Bestul, Computer Sci, UMd

Grad Students

Susan Harris, University of Arizona, Hydrology and Water Resources*

Davood Ghasemian, University of Arizona, Hydrology and Water Resources*

Colin Clark, University of Arizona, Applied Mathematics*

Jeffrey Hyman, University of Arizona, Applied Mathematics*

C. LARRABEE (LARRY) WINTER

Nan Tongchao, University of Arizona, Hydrology and Water Resources*
Becky Witte, University of Arizona, Hydrology and Water Resources*
Jacob Prieto, University of Arizona, Hydrology and Water Resources*
Mao Deqiang, University of Arizona, Hydrology and Water Resources
Michael Damron, Applied Math, Courant Institute of Mathematical Sciences, NYU*
Anne Jost, Hydrogeology, University of Paris VI
Rosangela Sviercoski, Applied Math, UA*
Eric Casillas-Morales, Hydrology, UA
Ming Lu, Hydrology, UA
David Kuijt, Computer Sci, UMd*
Oskar Levin, Hydrology, UA
* Thesis advisor or co-advisor

PUBLICATION LIST

Ph.D. Dissertation

Asymptotic Properties of Mass Transport in Random Porous Media, 1982, University of Arizona, Tucson.

Refereed Publications

- Hyman, J.D. and C. L. Winter, "Statistical Scaling of Geometric Characteristics in Stochastically Generated Pore Microstructures," accepted for publication in *Computational Geosciences*.
- Hyman, J.D., A. Guadagnini, C. L. Winter, Statistical scaling of geometric characteristics in stochastically generated pore microstructures, *Computational Geosciences*, DOI 10.1007/s10596-015-9493-8, May 2015.
- Guadagnini, A, S. P. Neuman, T.C. Nan, M. Riva, C. L. Winter, Scalable statistics of correlated random variables and extremes applied to deep borehole porosities, *HESS*, Volume: 19 Issue: 2 Pages: 729-745, 2015
- Hyman, Jeffrey D. and C. L. Winter, Direct numerical simulation of fully saturated flow in natural porous media at the pore scale: a comparison of three computational systems, *Computational Geosciences*, Volume: 19 Issue: 2 Pages: 423-437 Published: APR 2015
- Hyman, Jeffrey D. and C. L. Winter, Stochastic generation of explicit pore structures by thresholding Gaussian random fields, *J. Comp. Physics*, Volume: 277 Pages: 16-31 Published: NOV 15 2014
- Siena, M., M. Riva, J. D. Hyman, C. L. Winter, and A. Guadagnini, "Relationship between pore size and velocity probability distributions in stochastically generated porous media," *Phys. Rev. E* 89, 013018, 2014
- Hyman, J. and C. Winter, "Hyperbolic regions in flows through three-dimensional pore structures," *Phys. Rev. E* 88 (6) 063014, 2013
- Hyman, J., P. Smolarkiewicz, and C.L. Winter, "Pedotransfer functions for permeability: A computational study at pore scales, *Water Resources Research*, DOI: 10.1002/wrcr.20170
- Hyman J.D., P.K. Smolarkiewicz, and C.L. Winter, Heterogeneities of flow in stochastically generated porous media, *Phys. Rev. E* 86, 056701, doi: 10.1103/PhysRevE.86.056701, 2012
- Winter, C.L. and D.M. Tartkovsky, "Risk assessment", *Handbook of Environmental Fluid Dynamics*, ed. by H. Fernando, Taylor & Francis Books Inc., 2012.

C. LARRABEE (LARRY) WINTER

- Smolarkiewicz, P. and C.L. Winter, "Pores resolving simulation of Darcy flows," *J. Comp. Physics*, 229 (9), 2010.
- Winter, C.L., "Normalized Mahalanobis distance for comparing process-based stochastic models," *Stochastic Environ. Res. and Risk Assessment*, 24 (6), 2010.
- Winter, C.L. and D. Nychka, "Forecasting skill of model averages", *Stochastic Environ. Res. and Risk Assessment*, 24 (5), 2010.
- Damron, M. and C.L. Winter, "A non-Markovian model of rill erosion," *Networks in Heterogeneous Media*, 4 (4), 2009.
- Mahmoud M., et al. "A formal framework for scenario development in support of environmental decision-making," *Env. Modeling and Software*, 24 (7), 2009.
- Sviercoski, R.F., A.W. Warrick and C.L. Winter, "Two-scale analytical homogenization of Richards' equation for flows through block inclusions," *Water Resources Research*, 45, W05403, DOI: 10.1029/2006WR005598.
- Sviercoski, R.F., C.L. Winter and A.W. Warrick, "Analytical Approximation for the Generalized Laplace Equation with Step Function Coefficient," *SIAM J. Appl. Math.* 68 (5), 2008.
- Winter, C.L. and D.M. Tartkovsky, "A reduced complexity model for probabilistic risk assessment of groundwater contamination," *Water Resources Research*, 44 (6), 2008
- Yeh, T.C., C.L. Winter, et al., "A view towards the future of subsurface characterization: CAT scanning groundwater basins," *Water Resources Researc*, 44 (3), 2008.
- Tartkovsky, D.M. and C.L. Winter, "Uncertain future of hydrogeology," *J. Hydrologic Eng.*, 13 (1), 2008.
- Winter, C.L., A. Guadagnini, D. Nychka and D.M. Tartakovsky, "Multivariate sensitivity analysis of saturated flow through simulated highly heterogeneous groundwater aquifers," *J. Comp. Phys.*, 217 (1), 2006.
- Winter, C.L., "Stochastic hydrology: practical alternatives exist ," *Stochastic Environ. Res. and Risk Assessment*, 18 (4), 2004.
- Guadagnini A. and C.L., Winter, "Introduction: Stochastic models of flow and transport in multiple-scale heterogeneous porous media," *J. Hydrology*, 294 (1-3), 2004.
- Winter, C.L., E.S. Springer, K. Costigan, P. Fasel, S. Mniewski, G. Zyvoloski, "Virtual Watersheds: Simulating the Water Balance of the Rio Grande Basin", *IEEE Computers in Science and Engineering*, 6 (3), 2004.
- Guadagnini, A., L. Guadagnini, D. M. Tartakovsky, and C. L. Winter, "Random domain decomposition for flow in heterogeneous stratified aquifers," *Stochastic Environ. Res. and Risk Assessment*, 17(6), 2003.
- Winter, C.L. and D.M. Tartakovsky, "Groundwater flow in heterogeneous composite aquifers," *Water Resources Research*, 38 (8), 2002.
- Winter, C. L., D. M. Tartakovsky, and A. Guadagnini, Moment equations for flow in highly heterogeneous porous media, *Surv. Geophys.*, 24(1), 2003.
- Winter, C.L., D.M. Tartakovsky and A. Guadagnini, "A numerical solution of moment equations for flow in heterogeneous composite aquifers", *Water Resources Research*, 38(5), 2002.
- Guadagnini, A., L. Guadagnini, D.M. Tartakovsky, and C.L. Winter, Moments of groundwater flow in heterogeneous composite layered media, Proceedings of the 4th International Conference "Calibration and Reliability in Groundwater Modeling" (ModelCARE'02), Prague, Czech Republic, June 17 - 20, 2002.
- Tartakovsky, D.M. and C.L. Winter, Radial flow in heterogeneous aquifers with uncertain hydraulic parameters, Proceedings of the 4th International Conference "Calibration and Reliability in Groundwater Modeling" (ModelCARE'02), Prague, Czech Republic, June 17 - 20, 2002.

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- Winter, C.L. and D.M. Tartakovsky, "A theoretical foundation for conductivity scaling", *Geophysical Research Letters*, 28(23), 2001.
- Tartakovsky, D.M. and C.L. Winter, "Moving fronts in random media", *SIAM J. Appl. Math*, 2001.
- Winter, C.L. and D.M. Tartakovsky, "Mean flow in composite porous media", *Geophysical Research Letters*, 27 (12), 2000.
- Zhang, D. and C.L. Winter, "Moment-equation approach to single phase fluid flow in heterogeneous reservoirs", *Society of Petroleum Engineers Journal*, 4 (2), 1999.
- Tartakovsky, D. M. and C. L. Winter, Groundwater flow in composite aquifers under uncertainty, *Proceedings of the International Conference ``Calibration and Reliability in Groundwater Modeling'' (ModelCARE'99)*, Zürich, Switzerland, September 20-23, 1999.
- Tartakovsky, D. M., and C. L. Winter, Scale-dependent Darcy flows in fractured media, *Proceedings of the International Symposium in Honor of Paul A. Witherspoon: Dynamics of Fluids in Fractured Rocks: Concepts and Recent Advances*, Berkeley, California, February 10-12, 224-225, 1999.
- Mitkov, I., D. Tartakovsky, C.L. Winter, "Dynamics of wetting fronts in porous media," *Physical Review E*, 58 (5), 1998.
- Zhang, D. and C.L. Winter, "Nonstationary stochastic analysis of steady-state flow through variably saturated, heterogeneous media," *Water Resources Research*, 34 (5), 1998.
- Zhang, D., T.C. Wallstrom and C.L. Winter, "Stochastic analysis of steady-state unsaturated flow in heterogeneous media: Comparison of the Brooks-Corey and Gardner Russo models," *Water Resources Research*, 34 (6), 1998.
- Hagelberg, C.R., D.I. Cooper, C.L. Winter and W.E. Eichinger, "Spatial patterns in marine surface layer water vapor observations," *J. Geophysical Rsrch*, 103 (D14), 1998.
- Neuman, S.P., D. M. Tartakovsky, T.C. Wallstrom and C.L. Winter, "Correction to prediction of steady-state flow in nonuniform geologic media by conditional moments," *Water Resources Research*, 32, 1996.
- Carter, K.E. and C. L. Winter, "Fractal nature and scaling of normal faults in the Espanola Basin: implications for growth and strain," *J. of Structural Geology*, 17(6), 1995.
- Stein, Michael C. and C. L. Winter, "Recursive Bayesian fusion for force estimation," *Proc. 8th National Symposium on Sensor Fusion*, Dallas, TX, March 15-17, 1995.
- Winter, C. L. and Michael C. Stein, "Image Exploitation System overview," *Proc. 8th National Symposium on Sensor Fusion*, Dallas, TX, March 15-17, 1995.
- Levitt, T. S., C. L. Winter, C. J. Turner, R. A. Chestek, G. J. Ettinger, S. C. Sayre, "Bayesian inference-based fusion of radar imagery, military intelligence and terrain models in the Image Exploitation System," *International Journal of Human Computer Systems, Int. J. Human-Computer Studies*, 42, 1995.
- Cooke, B.J., K.S. Lackner, D.H. Sharp and C.L. Winter, "Efficient data transmission from silicon wafer strip detectors," *IEEE Trans. on Nuc. Sci.*, 39 (5), 1992.
- Cooke, B.J., K.S. Lackner, D.H. Sharp and C.L. Winter, "Superconducting super collider data compressions and driver/modulator architecture", *IEEE Trans. on Nuc. Sci.*, 39 (5), 1992.
- Winter, C. L., "BUGS: an adaptive critter," *J. Neural Network Comp.*, 1(1), 1989.
- Winter, C.L. "An adaptive network that learns state transitions," *Advances in Neural Information Processing Systems*, Morgan Kaufman, 1989.
- Guarino, D. R., R. P. Kruger, S. Sayre, T. Sos, C. J. Turner and C. L. Winter, "DARPA sensor national testbed: hardware and software architecture," *Proc. 2nd IEEE Symposium on Frontiers of Massively Parallel Computing*, Fairfax, VA, 1988.
- Winter, C.L. "An adaptive network that flees pursuit," *Neural Networks*, 1, Supp. 1, 1988.
- Neuman, S. P., C. L. Winter and C. M. Newman, "Stochastic theory of field-scale Fickian dispersion in anisotropic porous media," *Water Resources Research*, 23 (3), 1987.

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- Ryan, T.W., C.L. Winter and C.J. Turner, "Dynamic control of an artificial neural system: the property inheritance network," *Applied Optics*, 26(3), 1987.
- Reynolds, T. D., R.B. Shepard and C. L. Winter, "Calibration of resistance-type soil moisture units in a high clay-content soil," *Soil Science*, 144(4), 1987.
- Ryan, T. W. and C. L. Winter, "Variations on adaptive resonance," *Proc Intl. Joint Conf. Neural Net.*, San Diego, CA, 1987, reprinted in *Pattern Recognition by Self-Organizing Neural Networks*, ed. by. G. Carpenter and S. Grossberg, MIT Press, 1991.
- Ryan, T.W., C. L. Winter and C. J. Turner, "TIN: a trainable inference network," *Proc Intl. Joint Conf. Neural Net.*, San Diego, CA, 1987.
- Winter, C. L., S. Dreyfuss, B. R. Hunt and T. Levitt, "Is there a future for expert systems?," *Proc IEEE 6th Phoenix Conf. on Computers and Comm.*, Phoenix, AZ, 1987.
- Winter, C. L., T. W. Ryan and B. R. Hunt, "Inference and data structures for image identification," *Proc IEEE 5th Phoenix Conf. on Computers and Comm.*, Phoenix, AZ, 1986.
- Winter, C. L. and W. L. Cook, "Interval estimates for yield modeling," *IEEE J. Solid-State Circuits*, 21(4), 1986.
- Winter, C. L. and R.D. Girse, "Evolution and modification of probability in knowledge bases," *Proc. IEEE 2nd Conf. on AI Applications*, Miami Beach, FL, 1985.
- Winter, C. L., C.M. Newman and S. P. Neuman, "A perturbation expansion for diffusion in a random velocity field," *SIAM J. Appl. Math.*, 44(2), 1984.

Selected Reports

- "Analysis of LAM patient tomograms: stereology and modeling," V. Faber, C.M. Wing, C. L. Winter, and J. D. Zahrt, Los Alamos Unclassified Report, LA-UR-95-371, 1995.
- "Experiments with quadtree data structures," Kristi M. Carlson and C. L. Winter. Los Alamos Unclassified Report LA-UR-94-0359, Los Alamos National Laboratory, 1994.
- "Efficient data transmission from silicon wafer strip detectors," B. J. Cooke, Klaus S. Lackner, David H. Sharp, Larry Winter, Los Alamos National Laboratory, LAUR-91-3903, 1991.
- "Prediction of far-field subsurface radionuclide dispersion coefficients from hydraulic conductivity measurements, C. L. Winter, S. P. Neuman and C.M. Newman, US Nuclear Regulatory Commission Tech. Rpt., NUREG/CR-3612, 1984.

Edited Volumes

- Winter, C.L. and A. Guadagnini, Flow and transport through highly heterogeneous porous media, special edition of *J. Hydrology*, 294 (1-3), 2004.
- Zhang, D. and C. L. Winter, Theory, modeling and field investigation in hydrogeology: A special volume in honor of Shlomo P. Neuman's 60th birthday, Special Paper 348, Geol. Soc. Am., 2000.

Selected Invited Talks Through 2009

- Additional invited talks from 2009-2015 at AGU Fall Meeting; EGU Annual Meeting, Vienne Austria; Beihang University Beijing China; Tsinghua University, Beijing China; National Center for Atmospheric Research, Boulder, Colorado USA
- Winter, C.L., "A model of reduced complexity for groundwater contamination", AGU Fall Meeting, San Francisco, CA, December 18, 2009.
- Winter, C.L., "Some geometric properties of model performance", AGU Fall Meeting, San Francisco, CA, December 11, 2008.

C. LARRABEE (LARRY) WINTER

- Winter, C.L., "Moment statistics for flow and transport in randomly stratified media," SIAM Annual Meeting, San Diego, CA, July 11, 2008.
- Winter, C.L., "Hydrologic requirements for earth system modeling," Distinguished Lecturer, Multi-Scale Processes in Earth Systems, Texas A&M, October 3, 2007.
- Winter, C.L. "Water at the interface between land and atmosphere", International Symposium on Water Management, Peking University Water Research Center, July 2006
- Winter, C.L., "Hierarchical models for scale dependent stochastic Darcy Flows", AGU Western Pacific Meeting, Beijing, People's Republic of China, August 2006.
- Winter, C.L., A. Guadagnini, D. Nychka, and D.M. Tartakovsky, "Multivariate sensitivity analysis of saturated flow through simulated highly heterogeneous groundwater aquifers," AGU Fall Meeting, San Francisco, CA, December 8, 2005.
- Winter, C.L., "Stochastic PDEs in groundwater hydrology," IX Wkshp on PDEs, Instituto Nacional de Matematica Pura e Aplicada (IMPA), Rio de Janeiro, Brazil, plenary lecture, July 18-22, 2005.
- Winter, C.L., "Uncertainty in natural systems," Joint Conf. On Prob. Mech. and Structural Reliability, ASCE, Albuquerque, N.M., plenary lecture, July 26-28, 2004.
- Winter, C.L., "Darcy-type flows in random domains", Applied Math. Seminar, University of North Carolina, January 30, 2004.
- Winter, C.L., "Diffusion in random domains", Applied Math Seminar, Brown University, December 5, 2003.
- Winter, C.L., "Quantifying uncertainty in groundwater flow and transport: It's really dark down there", Center for Experimental Study of Subsurface Environmental Processes, Colorado School of Mines, October 16, 2003
- Winter, C.L., "Stochastic modeling in composite multi-scale porous media", American Geophysical Union Fall Meeting, San Francisco, CA, December 2002.
- Winter, C.L., "Conductivity scaling in porous media", Appl. Math. Colloq., University of Arizona, October 2002.
- Winter, C.L., "Integrated basin-scale modeling", Dept of Hydrology and Water Resources Seminar, University of Arizona, October, 2002.
- Winter, C.L., "Spectral analysis of random flows in heterogeneous porous media," Universite de Paris VI, April, 2002.
- Winter, C.L. and D.M. Tartakovsky, "Karhunen-Loeve decomposition of a random diffusion operator", Institute for Mathematics and Its Applications, University of Minnesota, January, 2002.
- Winter, C.L., "Non-stationary flow in porous media", 3 lectures, Politecnico di Milano, Milan, IT, July, 2000.
- Winter, C.L., "Flow in composite porous media," European Geophys. Soc. Annual Meeting, Nice, France, March, 2000.
- Winter, C.L., "Flow in highly heterogeneous porous media," Workshop on Stochastic Processes and Predictability in Multi-Scale Porous Media, Center for Non-Linear Studies, Los Alamos National Laboratory, July, 1999.
- Winter, C.L., "Random flows in porous media," Appl. Math. Colloq., University of Arizona, March, 1998.
- Winter, C. L., "Engineering applications of neural nets," Conf. on Neural Network Technology for Solving Engineering Problems, Center for AI Applications, University of Dayton OH, July, 1988.
- Winter, C. L., "Image processing with neural nets," Proc. Conf. on Commercial Assessment of Neural Nets, Institute for International Research, Los Angeles, CA, January 1988
- Granrath, D.R., T.W. Ryan and C.L. Winter, "Stochastic image analysis", IEEE Sys. Man and Cybernetics Annual Conf., Tucson, AZ, 1985.
- Winter, C.L. and S. P. Neuman, "Asymptotic coefficients for random dispersions," *NATO Advanced Study Institute on Mechanics of Fluids in Porous Media*, Newark, DE, 1982.

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Winter, C.L. and S. P. Neuman, "Evaluation of coefficients in the megascopic convection-dispersion equation," *3rd Annual Waste Management Symposium*, ASCE, Tucson, AZ, 1981.

Workshops and Sessions Organized Through 2002

Rio Grande Basin Modeling, J. Hogan, F. Phillips, and C.L. Winter, NSF Science and Technology Center for Sustainable Hydrology, Taos, NM, May 2002.

Flow and Transport in Highly Heterogeneous Random Porous Media, C.L. Winter and A. Guadagnini, European Geophysical Society, Annual Meeting, Nice, FR, April 2002.

Quantifying Uncertainty and Multiscale Phenomena in Subsurface Processes, J. Glimm, L. Durlafsky, M. Wheeler, L. Dulofofsky and C.L. Winter, Institute for Mathematics and Its Applications, University of Minnesota, January 2002.

Basin-Scale Hydrology, L. Bastidas, E. Springer and C.L. Winter, NSF Science and Technology Center for Sustainable Hydrology, Albuquerque, NM, May 2001.

Modeling Requirements for the Rio Grande, L. Bastidas and C.L. Winter, NSF Science and Technology Center for Sustainable Hydrology, New Mexico Institute of Mining and Technology, Socorro, NM, May 2001.

Stochastic Differential Equations in Geophysics, S. Habib, L. Margolin, D.M. Tartakovsky, C.L. Winter, Center for Nonlinear Studies, Los Alamos National Laboratory, September 1999.

Multiscale Processes in Random Porous Media, D. Moulton, C.L. Winter, and D. Zhang, Center for Nonlinear Studies, Los Alamos, National Laboratory, July 1999.

Computational Models of River Basins, J. Roads and C.L. Winter, NSF Science and Technology Center for Sustainable Hydrology, Scripps Institute of Oceanography, La Jolla, CA, September 1998.

Science of the Rio Grande, E. Springer and C.L. Winter, Coupled Environmental Modeling, Los Alamos National Laboratory, Albuquerque, NM, August 1997.

Image Understanding Workshop, D. Granrath, T. W. Ryan and C. L. Winter, IEEE Sys. Man and Cybernetics Annual

COLLABORATORS AND CO-EDITORS (Past 48 Months)

Michael Damron (NYU), Doug Nychka (NCAR), Rosangela Sviercoski (LANL), A.W. Warrick (UA), D.M. Tartakovsky (UCSD), T.C. Yeh (UA), A. Guadagnini (Politecnico di Milano), E.S. Springer (LANL), K. Costigan (LANL), P. Fasel (LANL), S. Mniewski (LANL), G. Zyvoloski (LANL), Cheng-Haw Lee (National Cheng-Kung University, Taiwan), Kuo-Chin Hsu (National Cheng-Kung University, Taiwan), Walter A. Illman (University of Waterloo), Warren Barrash, Boise State University, Boise), Xing Cai (Simula Research Laboratory, Norway), Jeffrey Daniels (Ohio State University), Ed Sudicky (University of Waterloo), Li Wan (China University of Geosciences, China), Guomin Li (Institute of Geology and Geophysics, Chinese Academy of Sciences)

FUNDING

Current

Project/Proposal Title: Construction and Operations of the National Ecological Observatory

Source of Support: NSF

Total Award Amount: \$1

Total Award Period Covered: 08/01/11-07/31/16

Location of Project: National Ecological Observatory Network Inc.

Project/Proposal Title: Organizational and Project Management Support to Complete the NEON

C. LARRABEE (LARRY) WINTER

Source of Support: NSF

Total Award Amount: \$57,508,802

Total Award Period Covered: 05/01/08-04/30/16

Location of Project: National Ecological Observatory Network Inc.

Pending

Project/Proposal Title: Collaborative Proposal: Stochastic Imaging & Modeling in Complex Subsurface Environments

Source of Support: NSF

Total Award Amount: \$396,285

Total Award Period Covered: 08/01/12-07/31/15

Location of Project: University of Arizona

Project/Proposal Title: Decision Support for Commercial Scale Geologic CO2 Utilization and Storage: Integrated Characterization, Modeling, and Risk Assessment

Source of Support: DOE

Total Award Amount: \$353,859

Total Award Period Covered: 10/01/12-09/30/15

Location of Project: University of Arizona

Project/Proposal Title: IGERT: Forecasting Water Security

Source of Support: NSF

Total Award Amount: \$3,405,651

Total Award Period Covered: 07/01/13-06/30/16

Location of Project: University of Arizona

Project/Proposal Title: Collaborative Proposal: Reactive Flows in Evolutionary Porous Media

Source of Support: DOE

Total Award Amount: \$935,734

Total Award Period Covered: 01/01/13-12/31/16

Location of Project: University of Arizona

Project/Proposal Title: Collaborative Proposal: Integrated Cyber-Infrastructure to Simulate and Analyze Flow and Transport in Complex Geophysical Structures

Source of Support: NSF

Total Award Amount: \$3,127,587

Total Award Period Covered: 01/01/13-09/30/19

Location of Project: University of Arizona

Project/Proposal Title: Projecting the Fate of a Coupled Human-Natural Macrosystem -- Modeling the Impacts of Managed Floods on the Colorado River Delta Ecosystem

Source of Support: NSF

Total Award Amount: \$353,784

Total Award Period Covered: 02/01/15-01/31/17

Location of Project: University of Arizona

C. LARRABEE (LARRY) WINTER