

Curriculum Vitae of Fan Zhang

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CONTACT INFORMATION

Oak Ridge National Laboratory, PO BOX 2008 MS6038, Oak Ridge, TN 37831-6038, USA
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RESEARCH AREAS

- Computational fluid dynamics,
- Surface and ground water hydrology
- Geochemical equilibrium and kinetics

EDUCATION

8/2001 – 5/2005 UNIVERSITY OF CENTRAL FLORIDA, ORLANDO, FLORIDA

- Ph.D., Civil Engineering
- Dissertation: A New Paradigm of Modeling Watershed Water Quality
- Advisor: Dr. Gour-Tsyh (George) Yeh

8/1998 – 6/2000 TSINGHUA UNIVERSITY, BEIJING, P. R. CHINA

- M.S., Civil Engineering
- Thesis: Study on the Application of KDF Media for Groundwater Treatment
- Advisor: Dr. Xiang Liu

8/1994 – 6/1998 TSINGHUA UNIVERSITY, BEIJING, P. R. CHINA

- B.S., Environmental Engineering
- Thesis: Study on the Hydrodynamic of Inner Loop Three Phases Fluidized Bed Bioreactor
- Advisor: Dr. Hanchang Shi

PROFESSIONAL EXPERIENCE

3/2008 – PRESENT RESEARCH STAFF SCIENTIST, ENVIRONMENTAL SCIENCES DIVISION, OAK RIDGE NATIONAL LABORATORY, OAK RIDGE, TENNESSEE

5/2005 – 3/2008 POSTDOCTORAL RESEARCH ASSOCIATE, OAK RIDGE ASSOCIATED UNIVERSITIES, ENVIRONMENTAL SCIENCE DIVISION, OAK RIDGE NATIONAL LABORATORY, OAK RIDGE, TENNESSEE

- HGC5: a subsurface model of fluid flow, thermal transport, hydrologic transport, and biogeochemical reactions in saturated/unsaturated media
- Application of HGC5 to the Oak Ridge Reservation in east Tennessee to investigate groundwater remediation under natural attenuation and engineered manipulation conditions
 - Simulation of lab experiments to study geochemistry of contaminants, such as Uranium and Cobalt.
 - Simulation of field plot transport to interpret tracer studies and facilitate of field scale study design.

- Simulation of watershed scale coupled density dependent flow and chemical transport in anisotropic porous media and utilized an inverse solution module for model calibration and parameter estimation.
- Modeled groundwater flow and non-aqueous phase liquid (NAPL) dissolution and transport with volatilization.
- Performed heat transfer and reactive chemical simulation for oil shale retort experiments and evaluated an “equivalent” first-order transfer function approximation for spherical matrix diffusion.

8/2000 – 5/ 2005 RESEARCH ASSISTANT, UNIVERSITY OF CENTRAL FLORIDA, ORLANDO, FLORIDA

- LEZOOMPC: a Lagrangian-Eulerian- method with adaptive ZOOMing and Peak/Valley Capture scheme for nonlinear transport problems with moving sharp-front.
- WASH123D: a watershed model to simulate water flow, sediment and reactive transport in river/stream networks, surface runoff and ground water
- BEST3D: an estuary model to simulate hydrodynamics and sediment-salinity-reactive chemical transport in bays and coastal waters

8/1998 – 6/2000 RESEARCH ASSISTANT, TSINGHUA UNIVERSITY, BEIJING, P. R. CHINA

- Effect of KDF media, a granular material composed of high-purity copper-zinc alloy, on the treatment of groundwater lightly contaminated with metals, such as Pb(II) and Cr(VI).
- Effect of mechanical stirring speed on the coagulation and settling of contaminants with various chemical additives for treatment of wastewater from paper mills.

RESEARCH AND SCHOLARLY ACTIVITIES:

EDITORIAL BOARDS:

- Associate Editor, ASCE Journal of Hydrologic Engineering, July 2009-present

INVITED REVIEWER

- Department of Energy (DOE) Small Business Innovation Research (SBIR) Phase II Proposal Review Panel , 2008
- Ground Water (2009-present)
- Geochimica et Cosmochimica Acta (2009-present)
- Journal of Environmental Management (2008-present)
- Environmental Science & Technology (2008-present)
- Waste Management (2008-present)
- Frontiers of Environmental Science & Engineering in China (2008-present)
- Computational Geosciences (2008-present)
- Water Resources Research (2008-present)
- Journal of Contaminant Hydrology (2006-present)
- Transport in Porous Media Journal (2005 – present)

MEMBERSHIP

- American Geophysical Union
- Environmental & Water Resources Institute of ASCE

AWARDS

- Who'sWho in America, Marguis Who'sWho , 2009
- Kersten Graduate Fellowship, University of Central Florida, 2002-2004
- Outstanding Student Paper Award, American Geophysical Union, 2003
- Graduate Travel Fellowship, University of Central Florida, 2002
- Guanghua fellowship, Tsinghua University, 1999
- Outstanding Graduate Award, Tsinghua University, 1998
- IET Undergraduate scholarship, IET Educational Funding, 1997-1998
- 1st-Class Excellent Student scholarship, Tsinghua University, 1995-1996
- 1st-Class Excellent Student scholarship, Tsinghua University, 1994-1995

GRANTS AND CONTRACTS

CURRENT

- “Multiscale Investigations on the Rates and Mechanisms of Targeted Immobilization and Natural Attenuation of Metal, Radionuclide and Co-Contaminants in the Subsurface” (co-PI) U.S. Dept. of Energy, Environmental Remediation Science Program, Oak Ridge Integrated Field Challenge, 2007-2012, \$15,000,000
- “Mobility of Particulate and Dissolved Munitions Constituents in the Vadose Zone at Operational Ranges” (Co-PI) U.S. Dept. of Defense, Strategic Environmental Research and Development Program, 2009-2012, \$1,114,675
- “Parallel Computing for Assessment of Predictive Uncertainty in Groundwater Reactive Transport Modeling” (Collaborator) ORAU/ORNL High Performance Computing (HPC) Grant, 2009-2012, \$75,000

PENDING

- “Meso-scale experiments to assess rates and mechanisms of chlorinated solvent back diffusion from low permeability formations and impacts on remediation effectiveness” (co-PI) U.S. Dept. of Defense, Strategic Environmental Research and Development Program, 2010-2014, \$2,265,000
- “Interactive Effects of Structure Layering, Colloids, and Wetting/Drying Cycles on Multidimensional Distribution and Transport of Radionuclides in Sediments” (co-PI) U.S. Dept. of Energy, Environmental Remediation Science Program, 2010-2013, \$1,216,236

PUBLICATIONS

BOOK EDITOR

1. **Zhang, F.**, G. T. Yeh, and J. C. Parker. 2009. Ground Water Reactive Transport Models. Bentham Science Publishers. ISBN 978-1-60805-029-1.(In progress)

BOOK CHAPTER

1. Yeh, G. T., G. B. Huang, H. P. Cheng, **F. Zhang**, H. C. Lin, E. Edris, and D. Richards, 2005. “A First Principle, physics-based watershed model: WASH123D”. Chapter 9 in Watershed Models (V. P. Singh and D. K. Frevert, ed.), CRC Press LLC, 6000 Broken Sound Parkway, NW, (Suite 300) Boca Raton, FL 33487, USA. pp. 211-244.

TECHNICAL REPORT

1. Yeh, G. T., G. B. Huang, **F. Zhang**, H. P. Cheng, and H. C. Lin, 2006. WASH123D: A Numerical Model of Flow, Thermal Transport, and Salinity, Sediment, and Water Quality Transport in WaterSHed Systems of 1-D Stream-River Network, 2-D Overland Regime, and 3-D Subsurface Media. A Technical Report Submitted To EPA. Dept. of Civil and Environmental Engineering, University of Central Florida, Orlando, FL 32816.

JOURNAL ARTICLES

- Cheng, W., **F. Zhang** and G.-T Yeh, Sediment and Reactive Chemical Transport Modeling In Overland Shallow Water Systems. *Journal of hydrological Engineering*. Submitting (2009)
 - **Zhang, F.**, Wu, W.-M., G. Zhang, S. C. Brooks, S. D. Kelly, T. Mehlhorn, J. Carley, D. Watson, K. M. Kemner, P.M. Jardine, C. Criddle C. Schadt. Ethanol and Oleate Stimulated Microbial Uranium (VI) Reduction and modeling. *Water Research*. Submitting (2009)
 - **Zhang, F.**, W. Luo, J. C. Parker, B. Gu, D. B. Watson and P. M. Jardine. Modeling of uranium and technetium transport in acidic contaminated groundwater with pH adjustment. *Transport in porous media*. Submitting (2009)
 - Tang, G., E. F. D’Azevedo, **F. Zhang**, J. C. Parker, D. B. Watson and P. M. Jardine. Parallelization of Hydrogeochem 5.0 with OpenMP and Application for Model Calibration with Parallel PEST. *Computers and geosciences*. Submitting (2009)
 - Wu, W.-M., G. Zhang, S. C. Brooks, S. D. Kelly, T. Mehlhorn, **F. Zhang**, J. Carley, D. Watson, K. M. Kemner, P.M. Jardine, C. Criddle C. Schadt. Oleate Stimulated Microbial Uranium (VI) Reduction in Contaminated Sediments under Sulfate Reducing Conditions. *Environmental Microbiology*. Submitting (2009)
 - **Zhang, F.**, J. C. Parker, D. B. Watson and P. M. Jardine. Modeling of uranium precipitation in dolomitic gravel Fill expose to acidic contaminated groundwater. *Ground Water*. In review (2009)
 - **Zhang, F.** and J. C. Parker. An Efficient Modeling Approach to Simulate Heat and Mass Transfer between Fracture and Matrix Regions for Oil Shale Retorting. *Transport in porous media*. In review (2009)
 - **Zhang, F.**, J. C. Parker, B. Gu, S. C. Brooks, D. B. Watson and P. M. Jardine. Sorption of uranium and technetium onto aluminum and iron hydroxides during titration of a contaminated groundwater with high sulfate. *Environmental Chemistry*. In review (2009).
 - **Zhang, F.**, G. T. Yeh, J. C. Parker, C. Wang, R. Gu, and P. M. Jardine. “A reaction-based river/stream water quality model: Reaction network decomposition and model validation”. *Journal of Environmental Engineering*. In review (2009)
1. Mayes, M. A., G. Tang, P. M. Jardine, L. D. McKay, X. L. Yin, M. N. Pace, J. C. Parker, F. Zhang, T. L. Melhorn and R. Dansby-Sparks. Influence of Sedimentary Bedding on Reactive Transport Parameters under Unsaturated Condition. *Soil Science Society of America Journal*. Accepted (2009)
 2. Yeh, G. T., Y. Fang, **F. Zhang**, J. Sun, Y. Li, M. H. Li, and M. D. Siegel. “Numerical Modeling of Coupled Fluid Flow and Thermal and Reactive Biogeochemical Transport in Porous and Fractured Media”. *Computational Geosciences*. Accepted (2009).
 3. **Zhang, F.**, S. C. Brooks, J. C. Parker, Y.-J. Kim, P. M. Jardine and D. B. Watson. Comparison of Approaches to Calibrate a Surface Complexation Model for U(VI) Sorption to Weathered Saproliite. *Transport in Porous Media Journal*. 78 (2): 185-197. (2009)
 4. **Zhang, F.**, W. Luo, J. C. Parker, B. P. Spalding, S. C. Brooks, D. B. Watson, P. M. Jardine, and B. Gu Geochemical reactions affecting aqueous-solid partitioning metals during titration of uranium contaminated soil. *Environmental Science and Technology*. 42 (21): 8007-8013 (2008).
 5. **Zhang, F.**, W. Luo, D. B. Watson, J. C. Parker, B. Gu, B. P. Spalding and P. M. Jardine. A reactive transport model to simulate uranium immobilization through pH manipulation. *Geochimica et cosmochimica acta*. 72(12): Meeting abstract A1080- A1080 (2008).
 6. Yan X., E. Radwan, **F. Zhang**, and J. C. Parker. Evaluation of Dynamic Passing Sight Distance Problem Using a Finite Element Model. *Journal of Transportation Engineering*. 134:225-235. (2008).
 7. **Zhang, F.**, G. T. Yeh, J. C. Parker, and P. M. Jardine. “A reaction-based river/stream water quality model: Model development and numerical schemes”. *Journal of Hydrology*. 348: 496-509 (2008).

8. **Zhang, F.**, L. Jiang, G. T. Yeh, and J. C. Parker. “An Adaptive Local Grid Refinement and Peak/Valley Capture Algorithm to Solve Nonlinear Transport Problems with Moving Sharp-Fronts”. *Transport in Porous Media Journal*. 72: 53-69. (2008).
9. **Zhang, F.**, G. T. Yeh, J. C. Parker, S. C. Brooks, M. N. Pace, Y.-J. Kim, P. M. Jardine, and D. B. Watson. “A reaction-based paradigm to model reactive chemical transport in groundwater with general kinetic and equilibrium reactions”. *Journal of Contaminant Hydrology*. 92: 10-32 (2007).
10. **Zhang F.** and X. Liu. “An experimental study on the treatment of phenol in water by KDF metallic media”. *China Water and Wastewater Journal*, 25: 35-38 (2001).

PEER-REVIEWED CONFERENCE PROCEEDINGS

1. Parker J. C. and **F. Zhang**. Modeling in Situ Shale Oil Retorting. *Proceedings of the 26th Oil Shale Symposium*. Golden, Colorado, USA. October 16-18 (2006).
2. Yeh G. T., **F. Zhang**, T.-S. Wu, and G. Hu. BEST3D: A Numerical Hydrodynamics and Water Quality Model: 2 – Water Quality. *Proceedings of the seventh international conference on hydroscience and engineering*. Philadelphia, Pennsylvania, USA. September 10-13 (2006).
3. Yeh, G. T., G. B. Huang, **F. Zhang**, H. P. Cheng, H. C. Lin, J. R. Cheng, E. Edris, and D. Richards. “An Integrated Media, Integrated Processes Watershed Model-WASH123D: Part 1-Model Descriptions and Features”. *Proceedings of the XVIth International Conference on Computational Methods in Water Resources*. Copenhagen, Denmark. June 18-22 (2006).
4. **Zhang, F.**, and G. T. Yeh. “An Integrated Media, Integrated Processes Watershed Model-WASH123D: Part 6-Sediment and Reactive Chemical Transport in Stream/River Networks”. *Proceedings of the XVIth International Conference on Computational Methods in Water Resources*. Copenhagen, Denmark. June 18-22 (2006).
5. **Zhang F.** and G. T. Yeh. “An Integrated Media, Integrated Processes Watershed Model-WASH123D: Part 7-Sediment and Reactive Chemical Transport in Surface Runoff”. *Proceedings of the XVIth International Conference on Computational Methods in Water Resources*. Copenhagen, Denmark. June 18-22 (2006).
6. **Zhang, F.**, G. T. Yeh, J.C. Parker, S. C. Brooks, M.N. Pace, Y. J. Kim, and P.M. Jardine “An Integrated Media, Integrated Processes Watershed Model-WASH123D: Part 8-Reactive Chemical Transport in Subsurface Media”. *Proceedings of the XVIth International Conference on Computational Methods in Water Resources*. Copenhagen, Denmark. June 18-22 (2006).
7. Yeh, G. T., **F. Zhang**, J. Yu, T. S. Wu, and G. Hu. “A Reaction-based, Diagonalization Approach to Water Quality Modeling”. *Estuarine and Coastal Modeling -- Proceedings of the Ninth International Conference*. Charleston, South Carolina, USA. October 31-November 2 (2005).
8. Yeh, G. T., **F. Zhang**, T. S. Wu, and G. Hu. “Are the status quo water quality models adequate for TMDL?” *Proceedings of the Third Conference on Watershed Management to Meet Water Quality Standards and Emerging TMDL (Total Maximum Daily Load)*. Atlanta, Georgia, USA. March 5-9 (2005).
9. Yeh, G. and **F. Zhang**. An Adaptive Local Grid Refinement and Peak/Valley Capture Algorithm to Solve Nonlinear Transport Problems with Moving Sharp-Fronts. *Proceedings of the 6th International Conference on Hydroinformatics*. Singapore, June 21-24 (2004).
10. Yeh, G., H. Shan, **F. Zhang**, and G. Hu. A Bay-Estuarine Model to Simulate Hydrodynamics and Thermal, Salinity, Sediment, and Water Quality Transport in Three Dimensions (BEST3D). *Proceedings of the 6th International Conference on Hydroinformatics*. Singapore, June 21-24 (2004).
11. **Zhang, F.** and G. T. Yeh. “A General Paradigm of Modeling Two-Dimensional Overland Watershed Water Quality”. *Proceedings of the XVth International Conference on Computational Methods in Water Resources*. Chapel Hill, North Carolina, USA. June 13-17 (2004).

12. **Zhang, F.** and G. T. Yeh. "A General Paradigm of Modeling Three-Dimensional Coastal Water Quality". *Proceedings of the Sixth International Conference on Hydro-science and Engineering*. Brisbane, Australia. May 30-June 3 (2004).
13. **Zhang, F.**, G. T. Yeh, and H. Suk. "An Investigation of various Eulerian-Lagrangian Localized Adjoint Methods and Lagrangian-Eulerian Finite Element Methods to Solve Transport Problems". *Proceedings of the XIVth International Conference on Computational Methods in Water Resources*. Delft, the Netherlands. June 23-28 (2002).

CONFERENCE POSTERS AND PRESENTATIONS

1. G.-T. Yeh, J.-P. Gwo, M.D. Siegel, M.-H. Li, Y. Fang, **F. Zhang**, and W. Luo. Innovative Mathematical Modelling in Environmental Remediation. International Conference on Remediation of Land Contaminated by Radioactive Material Residues Astana, Kazakhstan. May 18 – 22, 2009
2. W.-M. Wu, G. Zhang, S. D. Kelly, **F. Zhang**, T. Mehlhorn, S. Green, K. M. Kemner, S. Brooks, J. Kostka, C. S. Criddle, C. Schadt, D. Watson, P. M. Jardine, 2009. Reduction of Uranium (VI) in Sediments with Complicated Organic Electron Donors. *The 109th ASM General Meeting*. Philadelphia, PA, USA. May 17 – 21, 2009
3. **Zhang, F.**, In situ U(VI) bioreduction modeling at the ORFRC. Breakout Session 2: Biogeochemical Reaction Modeling. *Department of Energy's Environmental Remediation Science Program 4th Annual Principal Investigator Meeting*, Lansdowne, Virginia. April 20-23, 2009
4. **Zhang, F.**, G. Tang, J. C. Parker, J. Luo, W.-M. Wu, G. Zhang, S. Kelly, T. Mehlhorn, J. Carley, K. M. Kemner, C. Criddle, C. Schadt, W. Luo, B. Gu, B. P. Spalding, S. C. Brooks, D. B. Watson, P. M. Jardine. Multi-Process and Multi-Scale Modeling and Data Analysis at IFC site, Oak Ridge, TN. *Department of Energy's Environmental Remediation Science Program 4th Annual Principal Investigator Meeting*, Lansdowne, Virginia. April 20-23, 2009
5. W.-M. Wu, D. Watson, T. Mehlhorn, G. Zhang, C. Schadt, **F. Zhang**, S. D. Kelly, K. Lowe, K. M. Kemner, C. S. Criddle, Brian Spalding, S. Brooks, Y. Wu, Gregory Baker, Susan Hubbard, P. M. Jardine. Laboratory and In-Situ Biostimulation of Uranium Reduction and Immobilization using Long Chain Fatty Acids-containing Organics as Sustained Release Electron Donors at the Oak Ridge IFC site. *Department of Energy's Environmental Remediation Science Program 4th Annual Principal Investigator Meeting*, Lansdowne, Virginia. April 20-23, 2009
6. Spalding, B., D. W. and P. Jardine, F. Zhang, G. Tang, J. E. Kostka, S. J., Green, O. Prakash, W.-M. Wu, G. Zhang, S. Kelly, T. Mehlhorn, J. Carley, K. Kemner, C. Criddle, C. Schadt, W. Luo, B. Gu, J. Horita, and S. Brooks, Site-Wide Oak Ridge FRC Watershed Monitoring of Contaminant Distribution and Attenuation Processes. *Department of Energy's Environmental Remediation Science Program 4th Annual Principal Investigator Meeting*, Lansdowne, Virginia. April 20-23, 2009
7. Gu, B., **F. Zhang**, W. Luo, K. M. Kemner, S. Kelly, W.-M. Wu, C. Schadt, J. Kostka, J. Zhou, B. P. Spalding, D. B. Watson, J. C. Parker, P. M. Jardine. Subsurface pH Manipulation and Geochemical Modeling for the Immobilization of Uranium. *Department of Energy's Environmental Remediation Science Program 4th Annual Principal Investigator Meeting*, Lansdowne, Virginia. April 20-23, 2009
8. P.M. Jardine, David B. Watson, G. Baker, Craig C. Brandt, Scott C. Brooks, Craig S. Criddle, Chuck T. Garten, Baohua Gu, Juska Horita, Susan S. Hubbard, Lawrence, Shelly Kelly, Ken Kemner, Peter K. Kitanidis, Joel Kostka, Jian Luo, Anthony V. Palumbo, Jack C. Parker, Chris W. Schadt, Brian P. Spalding, Wei-M Wu, Joe Zhou, **F. Zhang**. Research Highlights and Future Directions of the Oak Ridge Integrated Field Research Challenge Project. *Department of Energy's Environmental Remediation Science Program 4th Annual Principal Investigator Meeting*, Lansdowne, Virginia. April 20-23, 2009

9. Jardine, P. M., D. B. Watson, G. Baker, C.C. Brandt, S.C. Brooks, C.S. Criddle, T.J. Phelps, C.T. Gaten, B. Gu, J. Horita, S.S. Hubbard, S. Kelly, K. Kemner, P. K. Kitanidis, J. Kostka, J. Luo, A.V. Palumbo, J.C. Parker, T.J. Schadt, B.P. Spalding, W.N. Wu, F. **Zhang**, and J. Zhou. An Oak Ridge Integrated Field Research Challenge Project: Multi-scale Investigations on the Rates and Mechanisms of Targeted Immobilization and Natural Attenuation of Metal, Radionuclide and Co-Contaminants in the Subsurface. *The AGU 2008 Fall Meeting*. San Francisco, California, USA. December 15-19 (2008).
10. Luo, W., F. Zhang, S. D. Kelly, K. Kemner, J. Zhou, D. B. Watson, P. M. Jardine, B. Gu. Subsurface pH Manipulation for the Immobilization of Uranium. *2008 Joint Annual Meeting*. Houston, Texas. October 5-9, 2008.
11. **Zhang, F.**, J. C. Parker, W. Luo, B. Gu, B. P. Spalding, S. C. Brooks, D. B. Watson, and P. M. Jardine. Subsurface transport and biogeochemistry modeling at IFC site, Oak Ridge, TN. *Fall 2008 National ACS Meeting & Exposition*. Philadelphia, PA. August 17-21, 2008.
12. Jardine, P. M., D. B. Watson, G. Baker, C.C. Brandt, S.C. Brooks, C.S. Criddle, C.T. Gaten, B. Gu, J. Horita, S.S. Hubbard, S. Kelly, K. Kemner, P. K. Kitanidis, J. Kostka, J. Luo, A.V. Palumbo, J.C. Parker, T.J. Phelps, C.W. Schadt, B.P. Spalding, W.N. Wu, **F. Zhang**, and J. Zhou. Research Highlights and Future Directions of the Oak Ridge Integrated Field Research Challenge Project: Implications to Future EM Remedial Decisions and Strategies. *Fall 2008 National ACS Meeting & Exposition*. Philadelphia, PA. August 17-21, 2008.
13. **Zhang, F.**, W. Luo, D. B. Watson, J. C. Parker, B. Gu, B. P. Spalding and P. M. Jardine. A reactive transport model to simulate uranium immobilization through pH manipulation. *Goldschmidt Conference 2008 - "from Sea to Sky"*. Vancouver, Canada. July 13-18, 2008.
14. Wang, C., G. T. Yeh, **F. Zhang**, and G. Huang. An Integrated Hydrology/Hydraulic and Water Quality Model for Watershed-scale Simulations. *XVII International Conference on Computational Methods in Water Resources*. San Francisco, California, USA. June 6-10 (2008).
15. **Zhang, F.**, J. Luo, W. Luo, J. C. Parker, B. Gu, B. P. Spalding, S. C. Brooks, D. B. Watson, P. M. Jardine. Multi-Process and Multi-Scale Modeling and Data Analysis at IFC site, Oak Ridge, TN. *Department of Energy's Environmental Remediation Science Program 3rd Annual Principal Investigator Meeting*, Lansdowne, Virginia. April 7-9, 2008
16. Gu, B., W.-M. Wu, W. Luo, C. Schadt, G. Zhang, S. Brooks, S. Kelly, K. Kemner, **F. Zhang**, J. Parker, A. Palumbo, J. Zhou, J. Kostka, C. Criddle, D. Watson, and P. Jardine. Oak Ridge IFC: Subsurface pH and Oleate Manipulation for the Immobilization of Uranium. *Department of Energy's Environmental Remediation Science Program 3rd Annual Principal Investigator Meeting*, Lansdowne, Virginia April 7-9, 2008
17. Jardine, P.M., D.B. Watson, G. Baker, C.C. Brandt, S.C. Brooks, C.S. Criddle, C.T. Gaten, B. Gu, J. Horita, S.S. Hubbard, S. Kelly, K. Kemner, P. K. Kitanidis, J. Kostka, J. Luo, A.V. Palumbo, J.C. Parker, T.J. Phelps, C.W. Schadt, B.P. Spalding, W.N. Wu, **F. Zhang**, and J. Zhou. Research Highlights and Future Directions at the Oak Ridge Integrated Field Research Challenge *Department of Energy's Environmental Remediation Science Program 3rd Annual Principal Investigator Meeting*, Lansdowne, Virginia April 7-9, 2008
18. P. M. Jardine, D. B. Watson, G. Baker, C.C. Brandt, S.C. Brooks, C.S. Criddle, C.T. Gaten, B. Gu, J. Horita, S.S. Hubbard, S. Kelly, K. Kemner, P. K. Kitanidis, J. Kostka, J. Luo, A.V. Palumbo, J.C. Parker, T.J. Phelps, C.W. Schadt, B.P. Spalding, W.-M. Wu, **F. Zhang**, and J. Zhou. Exploring Uranium Fate and Transport in Contaminated Subsurface Environments: Technology Transfer Opportunities for Uranium Mine Restoration. *Canadian Uranium Symposium: Fueling the Nuclear Renaissance*. Vancouver, Canada. April 2-3, 2008.

19. Yeh, G.-T., Y. Fang, J. Sun, M.-H. Li, **F. Zhang**, and M. D. Siegel. Numerical Modeling of Coupled Fluid Flow and Thermal and Reactive Biogeochemical Transport in Porous and Fractured Media. *The International Workshop on Modeling Reactive Transport in Porous Media*. Trasbourg, France. January 21-24, 2008.
20. Parker J., Palumbo A. V., Chapelle F., Fang Y., Hazen T., Istok J., Kitanidis P., Luo J., Scheibe T., Widdowson M., Yabusaki S., Mahadevan K., Bond D., Brooks S., Burgos B., Roden E., Schadt C., Sobecky P., and Zhang F. (2008) Remediation of Groundwater Contaminated by Nuclear Waste. A Workshop on Accelerating Development of Practical Field-Scale Bioremediation Models. An Online Meeting, 23 January to 20 February 2008. *EOS Trans. AGU* **89**(30), 271.
21. **Zhang, F.**, J. C. Parker, B. Gu, W. Luo, S. C. Brooks, B. P. Spalding, P. M. Jardine, D. B. Watson. A Geochemical Reaction Model for Titration of Contaminated Soil and Groundwater at the Oak Ridge Reservation. *The AGU 2007 Fall Meeting*. San Francisco, California, USA. December 10-14 (2007).
22. Parker J. C. and **F. Zhang**. Efficient Heat and Mass Transfer Formulations for Oil Shale Retorting. *The AGU 2007 Fall Meeting*. San Francisco, California, USA. December 10-14 (2007).
23. Parker, J., **F. Zhang** and E. Park. A Model for dissolved solvent transport with DNAPL Source Depletion, volatilization and decay: numerical and analytical solutions and uncertainty analysis. *Partners in Environmental Technology Technical Symposium & Workshop*. Washington, D.C., USA. November 28-30 (2006).
24. **Zhang, F.**, J. Parker, P. Jardine, M. Mayes, T. Mehlhorn, J.-P. Guo, and S. Cesar. Scale Effects on Apparent Reaction Kinetics at the Oak Ridge FRC. *Environmental Remediation Sciences Program Fall Meeting*. Oak Ridge, Tennessee, USA. October 23-25 (2006).
25. Yeh, G. T., **F. Zhang**, T. S. Wu, and G. Hu. "A Bay-Estuarine Model to Simulate Hydrodynamics and Thermal, Salinity, Sediment, and Water Quality Transport in 3-Dimensions (BEST3D)". *2005 Florida Bay and Adjacent Marine Systems Science Conference*. Duck Key, Florida, USA. December 11-14 (2005).
26. Yu, J., G. Yeh, **F. Zhang**, T. Wu, and G. Hu. "A Reaction-based Diagonalization Approach to Modeling Surface Water Quality". *The AGU 2005 Fall Meeting*. San Francisco, California, USA. December 5-9 (2005).
27. **Zhang, F.**, J. C. Parker, D. B. Watson, E. Park, and S. C. Brooks. "Subsurface Flow and Non-reactive Transport Modeling at the Oak Ridge FRC". *Oak Ridge Field Research Center Workshop*. Oak Ridge, Tennessee, USA. October 24-26 (2005).
28. **Zhang, F.**, J. Parker, D. Watson, K. Lowe, K. Hyder, and S. Brooks. "FRC Local Area 3 Model Development". *Oak Ridge Field Research Center Workshop*. Oak Ridge, Tennessee, USA. October 24-26 (2005).
29. **Zhang, F.** and G. Yeh. "A General Paradigm of Modeling Three-Dimensional Subsurface Water Quality." *The AGU 2004 Fall Meeting*. San Francisco, California, USA. December 13-17 (2004).
30. Shan, H., **F. Zhang**, G. Yeh, G. Hu, and T. Wu. "An Integrated Surface Water and Groundwater Model of Fluid Flow and Thermal, Salinity, Sediment and Reactive Biogeochemical Transport." *The AGU 2004 Fall Meeting*. San Francisco, California, USA. December 13-17 (2004).
31. J. Parker, E. Park, **F. Zhang**, and G. Yeh. 2004. FRC Numerical Modeling Update. *Oak Ridge Field Research Center Workshop*. Oak Ridge, Tennessee, USA. October 18-20 (2004).
32. **Zhang, F.** and G. Yeh. "A New Paradigm of Modeling Two-Dimensional Overland Watershed Water Quality". *The AGU 2003 Fall Meeting*. San Francisco, California, USA. December 8-12 (2003).
33. Yeh, G., H. Cheng, H. Lin, **F. Zhang**, E. V. Edris, and D. R. Richards. "Integrated Modeling of Infiltration, Evapotranspiration, Recharge, Subsurface Flow, Surface Runoff, and River Flow with

First Principle, Physics-based Approaches”. *The AGU 2003 Fall Meeting*. San Francisco, California, USA. December 8-12 (2003).

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