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EDUCATION AND TRAINING

2002 Ph.D., Hydrology, University of Arizona
1994 M.S., Hydromechanics/ Applied Mathematics, Kazan State University, Russia

RESEARCH AND PROFESSIONAL EXPERIENCE

2014-current, **Associate Division Director for Computational Mathematics**, Advanced Computing, Mathematics and Data Division, Pacific Northwest National Laboratory, Richland, Washington. *Multiscale modeling and uncertainty quantification for natural (ice sheets, subsurface) and engineered (fuel cells, power grids) systems.*

2013-2014, **Associate Professor**, School of Geosciences and Mathematics and Statistics Department, University of South Florida. *Multiscale modeling and uncertainty quantification for natural and engineered systems.*

2004-2013, **Staff Scientist**, Computational Mathematics Technical Group, Pacific Northwest National Laboratory, Richland, Washington. *Research on pore-scale and multiscale modeling of multiphase flow and reactive transport and uncertainty quantification in subsurface systems with applications in contaminant transport and geological carbon sequestration. Multiscale modeling of natural and engineered systems. PI ASCR-ECRP project on multiscale numerical methods; co-PI on ASCR funded MACS project on multiscale methods for power grids; PI on SciDAC project on multiscale methods for ice sheets; PI ASCR project on uncertainty quantification in advection-diffusion-reaction systems.*

2002-2004, **Postdoc**, Geoscience Group, Idaho National Laboratory, Idaho Falls, Idaho. *Research on uncertainty quantification and pore-scale modeling for multiphase flow and reactive transport in subsurface systems.*

SELECTED PUBLICATIONS *(h-index of 17 from more than 70 publications)*

Scheibe, T. D., E. M. Murphy, X. Chen, K. C. Carroll, A. K. Rice, B. J. Palmer, A. M. Tartakovsky, I. Battiato, and B. D. Wood. 2013. An analysis platform for multiscale hydrogeologic modeling with emphasis on hybrid multiscale methods, *Ground Water* (in press).

Panchenko, A., A.M. Tartakovsky, Discrete models of fluids: spatial averaging, closure and model reduction, *SIAM Journal on Applied Mathematics* (in press).

Bandara, U.C., M. Oostrom, B.J. Palmer, C. Zhang, J.W. Grate, and A.M. Tartakovsky, Pore-scale numerical simulations of unstable immiscible displacements in porous media, *Advances in Water Resources*, doi:10.1016/j.advwatres.2013.09.014, 2013.

Tartakovsky, G. D., A. M. Tartakovsky, T. D. Scheibe, Y. Fang, R. Mahadevan and D. R. Lovley. 2013. "Pore-scale simulation of microbial growth using a genome-scale metabolic model: Implications for Darcy-scale reactive transport," *Advances in Water Resources* 59: 256-270, doi:10.1016/j.advwatres.2013.05.007.

Scheibe, T. D., Z. Hou, B. J. Palmer and A. M. Tartakovsky. 2013. Pore-scale simulation of intragranular diffusion: Effects of incomplete mixing on macroscopic manifestations, *Water Resources Research* 49(7): 4277-4294,doi:10.1002/wrcr.20333.

Jarman, K. D., and A.M. Tartakovsky, "A Comparison of Closures for Stochastic Advection-Dispersion Equations," *SIAM/ASA Journal on Uncertainty Quantification*, doi:10.1137/120897419, 1, 319-347, 2013.

Kordilla, J., A. M. Tartakovsky, T. Geyer, "A Smoothed Particle Hydrodynamics model for multiphase flow in fractures", *Advances in Water Resources*, doi: 10.1016/j.advwatres.2013.04.009, 59, 1-14, 2013.

de Anna, P., T. Le Borgne, M. Dentz, A.M. Tartakovsky, D. Bolster, P. Davy, "Intermittent Properties of Flow in Porous Media", *Phys Rev Lett*, 110, 184502, doi: 10.1103/PhysRevLett.110.184502, 2013.

Tartakovsky, A. M. and T. D. Scheibe. 2011. "Dimension reduction method for advection-diffusion-reaction systems," *Advances in Water Resources*, 34(12): 1616-1626, doi:10.1016/j.advwatres.2011.07.011.

Pan, W., A. M. Tartakovsky, "Dissipative particle dynamics model for colloid transport in porous media," *Advances in Water Resources* 58, 41-48 doi: 10.1016/j.advwatres.2013.04.004 2013.

Pan, W., A. M. Tartakovsky, J. J. Monaghan, "Smoothed particle hydrodynamics non-Newtonian model for ice sheet and ice shelf dynamics," *Journal of Computational Physics*, 242: 828-842, doi:10.1016/j.jcp.2012.10.027, 2013.

Wang, P., A.M. Tartakovsky, D.M. Tartakovsky, "PDF Method for Langevin Equations with Colored Noise", *Phys Rev Lett*, 110, 140602, doi: 10.1103/PhysRevLett.110.140602, 2013.

Battiato, I., D. M. Tartakovsky, A. M. Tartakovsky, and T. D. Scheibe. 2011. "Hybrid models of reactive transport in porous and fractured media," *Advances in Water Resources*, 34(9): 1140-1150, doi:10.1016/j.advwatres.2011.01.012.

Tartakovsky, A., G. Redden, P. C. Lichtner, T. D. Scheibe, and P. Meakin. 2008. Mixing-Induced Precipitation: Experimental Study And Multi-Scale Numerical Analysis, *Water Resources Research*, 44, W06S04, doi:10.1029/2006WR005725.

SYNERGISTIC ACTIVITIES

- American Geophysical Union, Society for Applied and Industrial Mathematics
- 2011 U.S. Department of Energy (DOE) Office of Science Early Career Research Program Award
- 2008 Presidential Early Career Award for Scientists and Engineers
- 2008 Department of Energy (DOE) Office of Science's Early Career Award in Science and Engineering
- Convener: various sessions of the AGU, SIAM and other international meetings
- Referee: various journals on hydrology, geophysics, and applied mathematics
- Panelist: various DOE Peer Review Panels