

Peng Wang (Koby)

School of Mathematical Sciences, International Research Institute for Multidisciplinary Science, Beihang University, 37 Xueyuan Road, Beijing, China wang.peng@buaa.edu.cn, wang.peng@outlook.com

Research Interest

- Uncertainty Quantification: flow and transport in porous media, multiphase flows, material informatics, solar energy forecast.
- **Stochastic Computing:** generalized polynomial chaos expansion, inverse modeling, data assimilations, methods of distribution, reduced order model.

Education

- 2007/09 2011/06 **Ph. D. in Engineering Science with specialty in Computational Science**, Department of Mechanical and Aerospace Engineering, the University of California, San Diego.
- 2007/09 2010/06 **M. Sc. in Engineering Science with Mechanical Engineering**, Department of Mechanical and Aerospace Engineering, the University of California, San Diego.
- 2003/10 2007/06 M. Eng. in Mechanical Engineering (1st Class Honor), School of Engineering, Durham University.

Work Experience

- 2014/03 tenure **Professor**, School of Mathematics and System Sciences, Beihang University, China.
- 2013/04 2013/12 **Staff Scientist**, *Computational Mathematics Group, Pacific Northwest National Laboratory, U.S.A.*
- 2011/08 2013/04 **Postdoctoral Researcher**, Computational Mathematics Group, Pacific Northwest National Laboratory, U.S.A.
- 2002/08 2003/08 Teaching Fellow, Oundle School, U.K.

Funding History

Curriculum Vitae

- 2019/09 2020/06 **Principal Investigator**, *Linking pore microstructures to dissolution kinetics in MSC beads*, USD\$ 18K, *Pfizer Inc*.
- 2017/07 2021/07 **Principal Investigator,** *High-throughput material data management, reliability analysis and intelligent learning (2017YFB07017020), RMB¥ 5,070K, State Material Genome Engineering Project, China Ministry of Science of Technology.*
- 2016/01 2019/12 Principal Investigator, Numerical framework for PDF/CDF methods for uncertainty quantification on dynamics systems with uncertain parameters (11571028), RMB¥ 500K, China National Natural Science Foundation.
- 2018/07 2021/12 **Co-Principal Investigator**, Integrated software development for multi-scale computational material discovery (2018YFB07017020), RMB¥ 1,070K, China Material Genome Engineering Project, Ministry of Science of Technology.
- 2017/01 2020/12 **Co-Principal Investigator**, Uncertainty quantification and diagnosis for embedded software faults due to noise (61672080), RMB¥ 50K, China National Natural Science Foundation.

Professional Activities

- 2019 now Associate (Lead) Editor/Editorial Board, Journal of Machine Learning for Modeling and Computing.
- 2014 now 2017-now **Executive Member**, *Technical Committee of Computations in Material Genome Engineering, China Standard of Testing and Materials Committee*.
- 2015 now Member of Editorial Board, International Journal for uncertainty quantification.
- 2014 now Member, China Society of Industrial and Applied Mathematics.
- 2011 now Member, American Society of Industrial and Applied Mathematics.
- 2009 now Member, American Geophysical Union.

Books

• P. Wang and D. Xiu, *Introduction to Uncertainty Quantification*, China Science Publishing & Media, 2019 (in Chinese), *ISBN:* 9787030594723

Selected Publications

J. Bright*, X. Bai, Y. Zhang, X. Sun, B. Acord and P. Wang, *irradpy: Python package for MERRA-2 download, extraction and usage for clear-sky irradiance modelling*, Solar Energy, 2020, vol. 199, pp. 685-693.

Curriculum Vitae

- J. Bright*, X. Sun, C. A. Gueymard, B. Acord, P. Wang* and N. A. Engerer, *Bright-Sun: A globally applicable 1-min irradiance clear-sky detection model*, Renewable and Sustainable Energy Reviews, 2020, vol. 121.
- Y. Ye, A. Ruiz-Martinez, P. Wang* and D. M. Tartakovsky*, *Quantification of predictive uncertainty in models of FtsZ ring assembly in Escherichia coli*, Journal of Theoretical Biology, 2019, vol. 484, pp. 110006.
- L. Yang, Y. Qin, A. Narayan and P. Wang*, *Data assimilation for models with parametric uncertainty*, Journal of Computational Physics, 2019, vol. 396, pp. 785-798.
- X. Sun, J. Bright*, C. A. Gueymard, B. Acord, P. Wang* and N. Engerer, Worldwide performance assessment of 75 global clear-sky irradiance models using Principal Component Analysis, Renewable and Sustainable Energy Reviews, 2019, vol. 111, pp. 550-570.
- P. Wang*, Y. Qin, M. Cheng, G. Wang, D. Xiu and Z. Sun*, A new method for an old topic: Efficient and reliable estimation of material bulk modulus, Computational Materials Science, 2019, vol. 165, pp. 7-12.
- M. Cheng#, A. Narayan#, Y. Qin#, P. Wang#*, X. Zhong# and X. Zhu#, An Efficient Solver for Cumulative Density Function-based Solutions of Uncertain Kinematic Wave Models, Journal of Computational Physics, 2019, vol. 382, pp.138-151.
- P. Wang, H. Chen, X. Meng, X. Jiang, D. Xiu and X. Yang*, *Uncertainty quantification on macroscopic properties of random porous media*, Physical Review E, 2018, vol. 98, no. 3, pp. 033306.
- X. Shi, B. Acord, **P. Wang***, *Incorporating ground measured pollution observations to improve temporally downscaled solar irradiance simulations*, Solar Energy, 2018, vol. 171, 293-301.
- L. Yang, A. Narayan and P. Wang*, Sequential data assimilation with multiple nonlinear models and applications to subsurface flow, Journal of Computational Physics, 2017, vol. 346, pp. 356-368.
- J. Xu, S. Yao, S. Yang and P. Wang*, *Software reliability growth model with temporal correlation in a network environment*, International Journal for Uncertainty Quantification, 2016, vol. 6, no. 2, pp.141-156.
- X. Shi, **P. Wang** and D. Xiu, *Uncertainty quantification of scientific proposal evaluations*, International Journal for Uncertainty Quantification, 2016, vol. 6, no. 2, pp.167-173.
- P. Wang, D. A. Barajas-Solano, E. Constantinescu, S. Abhyankar, D. Ghosh, B. F. Smith, Z. Huang and A. M. Tartakovsky*, *Probabilistic density function method for stochastic ODEs of power systems with uncertain power input*, SIAM/ASA Journal on Uncertainty Quantification, 2015, vol. 3, no. 1, pp. 873-896.
- P. Wang*, A. M. Tartakovsky and D. M. Tartakovsky, *PDF method for dynamic system with colored noise*, *Physical Review Letters*, 2013, vol. 110, no. 14, pp. 140602.

Curriculum Vitae

- **P. Wang**, D. M. Tartakovsky, K. Jarman Jr. and A. M. Tartakovsky*, *CDF solutions of Buckley-Leverett equation with uncertain parameters*, SIAM Journal of multiscale modeling and simulation, 2013, vol. 11, no. 1, pp. 118-133.
- **P. Wang** and D. M. Tartakovsky*, *Uncertainty quantification in kinematic-wave models*, Journal of Computational Physics, 2012, vol. 231, no. 23, pp. 7868-7880.
- **P. Wang** and D. M. Tartakovsky*, *Reduced complexity models for probabilistic forecasting of infiltration rate*, Advances in Water Resources, 2011, vol. 34, pp. 375-382.
- **P. Wang** and D. M. Tartakovsky*, *Probabilistic predictions of infiltration into heterogeneous media with uncertain hydraulic parameters*, Internal Journal for Uncertainty Quantification, 2011, vol. 1, no. 1, pp. 35-47.
- P. Wang, P. Quinlan and D. M. Tartakovsky*, *Effects of spatio-temporal variability of precipitation on contaminant migration in the vadose zone*, Geophysical Research Letters, 2009, vol. 36, L12404.