Stanford



Daniel Tartakovsky

Professor of Energy Science Engineering

Energy Science & Engineering

Curriculum Vitae available Online

Bio

ACADEMIC APPOINTMENTS

- Professor, Energy Science & Engineering
- Member, Bio-X
- Member, Wu Tsai Human Performance Alliance
- Member, Institute for Computational and Mathematical Engineering (ICME)
- Member, Wu Tsai Neurosciences Institute

ADMINISTRATIVE APPOINTMENTS

- Staff Scientist, Institute of Mathematics and Mechanics, Kazan State University, Kazan, Russia, (1990-1993)
- Technical Staff Member, Computer Research and Applications Group, CCS Division, Los Alamos National Laboratory, (1999-2000)
- Technical Staff Member and Team Leader (Multiscale Analysis Team, since 9/2004), Mathematical Modeling and Analysis Group, Theoretical Division, Los Alamos National Laboratory, (2000-2007)
- Adjunct Associate Professor, Department of Hydrology and Water Resources, The University of Arizona, Tucson, (2001-2004)
- Associate Professor, Department of Mechanical and Aerospace Engineering, University of California, San Diego, (2004-2008)
- Professor, Department of Mechanical and Aerospace Engineering, University of California, San Diego, (2008-2016)
- Professor, Department of Energy Resources Engineering, Stanford University, (2016- present)

HONORS AND AWARDS

- Foreign Member, Accademia delle Scienze, Istituto di Bologna (Sezione: Scienze Tecniche), Italy (2015)
- Chutian Scholar Chair Professor, Three Gorges University, People's Republic of China (PRC) (2012)
- Travel award, State Administration of Foreign Expert Affairs, PRC (2010)
- The 1999 Editors' Citation for Excellence in Refereeing for Water Resources Research, EOS, 81(49), p. 598, December 5, 2000 (2000)
- Travel award - The framework of the short-term mobility program, Italy, Italian Centro Nazionale delle Ricerche (CNR), (1999 & 2000)
- Award, Special Fund for the Award of Personal Scholarships and Grants to Gifted Young Academics, Novosibirsk, Russia (1993)
- Award, All-Union Student Research Conference in Mathematics and Mechanics, Moscow, USSR (1991)

BOARDS, ADVISORY COMMITTEES, PROFESSIONAL ORGANIZATIONS

- Associate Editor, SIAM Journal on Scientific Computing (SISC) (2012 - present)
- Associate Editor, SIAM/ASA Journal on Uncertainty Quantification (2012 - present)
- Associate Editor, Water Resources Research (2010 - present)

- Member of Editorial Board, International Journal for Uncertainty Quantification (2010 - present)
- Associate Editor, Stochastic Environmental Research and Risk Assessment (2007 - present)
- Guest Editor, Computing in Science and Engineering (2007 - 2007)
- Guest Editor, Computing in Science and Engineering (2005 - 2005)
- Member of Editorial Board, Advances in Water Resources (2004 - present)
- Editor, Reviews of Geophysics (2001 - 2010)

PROFESSIONAL EDUCATION

- Ph.D., Department of Hydrology and Water Resources, The University of Arizona, Tucson , Hydrology (1996)
- M.Sc., Department of Mathematics and Mechanics, Kazan State University, Russia (Summa Cum Laude) , Applied Mathematics/Fluid Mechanics (1991)

Research & Scholarship

CURRENT RESEARCH AND SCHOLARLY INTERESTS

Environmental fluid mechanics:

Subsurface flow and contaminant transport, multiphase flow, groundwater hydrology, reservoir simulations, well hydraulics, surface-water/groundwater interactions, inverse modeling, subsurface imaging, decisions under uncertainty, geothermal energy.

Applied and computational mathematics:

Mathematical modeling of complex systems (electrochemistryfor energy storage, design of nano-porous materials), uncertainty quantification, probabilistic risk assessment, stochastic partial differential equations, hybrid numerical algorithms, spatial statistics, data assimilation.

Biomedical modeling:

Blood flow, microcirculation, intracellular and intercellular transport, bioinformatics, computational cell biology, hemodynamics, chemotaxis.

Teaching

COURSES

2026-27

- Mathematical Methods for Engineers: ENERGY 281 (Win)
- Uncertainty Quantification in Data-Centric Simulations: ENERGY 160 (Spr)

2025-26

- Applied Mathematics in Sustainability: ENERGY 281 (Win)

2024-25

- Applied Mathematics in Sustainability: ENERGY 281 (Win)
- Uncertainty Quantification in Data-Centric Simulations: ENERGY 160, ENERGY 260 (Spr)

2023-24

- Applied Mathematics in Sustainability: ENERGY 281 (Win)
- Uncertainty Quantification in Data-Centric Simulations: ENERGY 160, ENERGY 260 (Spr)

STANFORD ADVISEES

Doctoral Dissertation Reader (AC)

Ayya Alieva, Guido Di Federico, Lama El Halabi, Filippos Kostakis, Changgyun Son, Gowri Subedar, Wenchao Teng, Dang Ton, Teja Tripuraneni

Doctoral Dissertation Advisor (AC)

Alexander Kiral, Nik Leuenberger, Gary Li, Mandy Lu, Michael Manta, Adrienne Propp, Alec Shelley, Apoorv Srivastava, Jonathan Thompson, Charles Yang

Master's Program Advisor

Mohammed Alahmed, Erick Rodriguez

Doctoral (Program)

Sondre Aasen, Zhibo Dai, Ciro Guimaraes, Naoki Sakai, Kongphop Wongpattananukul, Kaiyuan Zhang

Publications

PUBLICATIONS

- **Short-term forecasting from GRACE data via dynamic mode decomposition with sequential update** *JOURNAL OF HYDROLOGY*
  Ciriello, V., Libero, G., Tartakovsky, D. M.
  2026; 681
- **Statistical moment equations for fluid flow and deformation in poroelastic randomly heterogeneous materials** *COMPUTER METHODS IN APPLIED MECHANICS AND ENGINEERING*
  Tripuraneni, S., Tartakovsky, D. M., Tchelepi, H. A.
  2027; 464
- **Nuclear safety monitoring under restricted access: A remote sensing and OSINT approach to the Zaporizhzhia nuclear power plant** *REMOTE SENSING APPLICATIONS-SOCIETY AND ENVIRONMENT*
  Park, S., Muratbek, A., Rodriguez, E., Tuz, A., Tartakovsky, D. M., Puccioni, A., Gottemoeller, R.
  2026; 43
- **Regional surrogates for predictive control of digital twins** *JOURNAL OF COMPUTATIONAL PHYSICS*
  Zhang, Y., Tartakovsky, D. M.
  2026; 557
- **Transport-Limited Interfacial Electrochemistry in Porous Electrodes** *JOURNAL OF THE ELECTROCHEMICAL SOCIETY*
  Yang, X., Tartakovsky, D. M.
  2026; 173 (13)
- **Computable kinetic defect measure for scalar hyperbolic conservation laws** *JOURNAL OF COMPUTATIONAL PHYSICS*
  Srivastava, A., Tartakovsky, D. M.
  2026; 564
- **In- Place Volume Estimation: The Role of Downhole Temperature Data** *SPE JOURNAL*
  Guimaraes, C. S., Galvao, M. S., Horne, R. N., Tartakovsky, D. M.
  2026; 31 (7): 4755-4776
- **Efficient approach to uncertainty quantification for emergency well planning under data scarcity** *ADVANCES IN WATER RESOURCES*
  Chen, S., Hsu, K., Ke, C., Chen, N., Tartakovsky, D. M.
  2026; 215
- **Universality Class of Ion-Intercalation Models.** *The journal of physical chemistry letters*
  Yang, C. F., Cui, Y., Tartakovsky, D. M.
  2026
- **CODE: A GLOBAL APPROACH TO ODE DYNAMICS LEARNING** *JOURNAL OF MACHINE LEARNING FOR MODELING AND COMPUTING*
  Wildt, N., Tartakovsky, D. M., Oladyshkin, S., Nowak, W.
  2026; 7 (2): 73-105

- **Effects of wall roughness on coupled flow and heat transport in fractured media** *JOURNAL OF FLUID MECHANICS*
  Lenci, A., Meheust, Y., Klepikova, M., Di Federico, V., Tartakovsky, D. M.
  2026; 1032
- **Electrochemical Models of Multi-Unit Lithium Batteries Under Thermal Gradient** *JOURNAL OF THE ELECTROCHEMICAL SOCIETY*
  Yang, X., Cui, Y., Tartakovsky, D. M.
  2026; 173 (5)
- **Method of distributions for transient flow in porous media with uncertain properties** *ADVANCES IN WATER RESOURCES*
  Tripuraneni, S., Tartakovsky, D. M., Tchelepi, H. A.
  2026; 209
- **Two-Stage Wildlife Event Classification for Edge Deployment.** *Sensors (Basel, Switzerland)*
  Viswanathan, A. S., Bock, A., Bent, Z., Peyton, M. A., Tartakovsky, D. M., Santos, J. E.
  2026; 26 (4)
- **Estimation of battery core temperature from indirect observations and models with error** *JOURNAL OF POWER SOURCES*
  Yang, X., Tartakovsky, D. M.
  2026; 664
- **DISCOVERY OF PROBABILISTIC DIRICHLET-TO-NEUMANN MAPS ON GRAPHS** *SIAM JOURNAL ON SCIENTIFIC COMPUTING*
  Propp, A. M., Actor, J. A., Walker, E., Owhadi, H., Trask, N., Tartakovsky, D. M.
  2026; 48 (2): C191-C215
- **GAUSSIAN-PROCESSMODELS OFPOPULATION DYNAMICS** *JOURNAL OF MACHINE LEARNING FOR MODELING AND COMPUTING*
  Li, L., Xiu, I., Tartakovsky, D. M.
  2026; 7 (1): 25-49
- **FOURIER NEURAL OPERATOR SURROGATE OF LITHIUM-ION BATTERY MODELS** *JOURNAL OF MACHINE LEARNING FOR MODELING AND COMPUTING*
  Viswanathan, A., Yang, X., Tartakovsky, D. M.
  2026; 7 (1): 51-68
- **INTEGRAL KERNEL METHODS FOR NONLINEAR PARABOLIC-ELLIPTIC SYSTEMS** *SIAM JOURNAL ON SCIENTIFIC COMPUTING*
  Monteiro, H. B. N., Tartakovsky, D. M.
  2026; 48 (2): A958-A983
- **Transfer learning of neural surrogates on multifidelity groundwater simulations** *ADVANCES IN WATER RESOURCES*
  Chiofalo, A., Ciriello, V., Tartakovsky, D. M.
  2025; 206
- **Electrochemical multilayer perceptron for lithium batteries** *JOURNAL OF POWER SOURCES*
  Yang, X., Tartakovsky, D. M.
  2025; 659
- **Optimized Particle Porosity to Alleviate Diffusion-Induced Stresses in High-Capacity Electrodes** *JOURNAL OF THE ELECTROCHEMICAL SOCIETY*
  Joshi, S. A., Tchelepi, H. A., Tartakovsky, D. M.
  2025; 172 (12)
- **Multipoint Correlations in Poisson Media.** *Physical review letters*
  Shelley, A., Olson, A., Geraci, G., Tartakovsky, D. M.
  2025; 135 (15): 156101
- **Microkinetic Models of Electrochemistry: Assumptions, Limitations, and Failures** *JOURNAL OF PHYSICAL CHEMISTRY C*
  Yang, C. F., Cui, Y., Tartakovsky, D. M.
  2025
- **Generalizable models of magnetic hysteresis via physics-aware recurrent neural networks** *COMPUTER PHYSICS COMMUNICATIONS*
  Chandra, A., Kapoor, T., Daniels, B., Curti, M., Tiels, K., Tartakovsky, D. M., Lomonova, E. A.

2025; 314

- **Data-aware forecast of harmful algal blooms with model error.** *Water research*
  Cheng, M., Sheshukov, A. Y., Wang, P., Tartakovsky, D. M.
  2025; 286: 124201
- **Impact of Boulders and Boulder-Induced Morphology on Oxic Volume of the Hyporheic Zone of Plane-Bed Rivers** *WATER RESOURCES RESEARCH*
  Adler, K. E., Monsalve, A., Reeder, W. J., Yager, E., Tartakovsky, D. M., Blois, G., Tonina, D.
  2025; 61 (7)
- **High-precision geosteering via reinforcement learning and particle filters** *COMPUTATIONAL GEOSCIENCES*
  Muhammad, R., Srivastava, A., Alyaev, S., Bratvold, R. B., Tartakovsky, D. M.
  2025; 29 (2)
- **Dual-Continuum Models of Electrochemical Transport in Porous Electrodes** *JOURNAL OF THE ELECTROCHEMICAL SOCIETY*
  Yang, X., Tartakovsky, D. M.
  2025; 172 (2)
- **TRANSFER LEARNING ON MULTI-DIMENSIONAL DATA: A NOVEL APPROACH TO NEURAL NETWORK-BASED SURROGATE MODELING** *JOURNAL OF MACHINE LEARNING FOR MODELING AND COMPUTING*
  Propp, A. M., Tartakovsky, D. M.
  2025; 6 (2): 13-27
- **INFORMATION WORTH AND ASSIMILATION OF BINARY DATA** *SIAM JOURNAL ON SCIENTIFIC COMPUTING*
  Srivastava, A., Kang, W., Tartakovsky, D. M.
  2025; 47 (5): A3017-A3037
- **AI-ENABLED CARDIOVASCULAR MODELS TRAINED ON MULTIFIDELITY SIMULATIONS DATA** *JOURNAL OF MACHINE LEARNING FOR MODELING AND COMPUTING*
  Chiofalo, A., Careddu, L., Ciriello, V., Tartakovsky, D. M.
  2025; 6 (3): 1-17
- **DISCOVERY OF LINEAR REPRESENTATIONS FOR NONAUTONOMOUS TRANSLATION-INVARIANT PROBLEMS** *SIAM JOURNAL ON SCIENTIFIC COMPUTING*
  Zhao, H., Tartakovsky, D. M.
  2025; 47 (4): A2074-A2097
- **Non-equilibrium thermal models of lithium batteries** *JOURNAL OF POWER SOURCES*
  Yang, X., Li, W., Um, K., Tartakovsky, D. M.
  2024; 623
- **Neural Differential Equation-Based Two-Stage Approach for Generalization of Beam Dynamics** *IEEE TRANSACTIONS ON INDUSTRIAL INFORMATICS*
  Kapoor, T., Wang, H., Stamou, A., Sayed, K., Nunez, A., Tartakovsky, D. M., Dollevoet, R.
  2024
- **Dynamic mode decomposition of GRACE satellite data** *ADVANCES IN WATER RESOURCES*
  Libero, G., Ciriello, V., Tartakovsky, D. M.
  2024; 193
- **High-order Lagrangian algorithms for Liouville models of particle-laden flows** *JOURNAL OF COMPUTATIONAL PHYSICS*
  Dominguez-Vazquez, D., Castiblanco-Ballesteros, S. A., Jacobs, G. B., Tartakovsky, D. M.
  2024; 515
- **Design of Stable Hollow Particles for Silicon Anodes** *ACS ENERGY LETTERS*
  Joshi, S. A., Tchelepi, H. A., Tartakovsky, D. M.
  2024
- **A meshless stochastic method for Poisson-Nernst-Planck equations.** *The Journal of chemical physics*
  Monteiro, H. B., Tartakovsky, D. M.

2024; 161 (5)

- **Data-driven models of nonautonomous systems** *JOURNAL OF COMPUTATIONAL PHYSICS*
  Lu, H., Tartakovsky, D. M.
  2024; 507
- **Efficient quadratures for high-dimensional Bayesian data assimilation** *JOURNAL OF COMPUTATIONAL PHYSICS*
  Cheng, M., Wang, P., Tartakovsky, D. M.
  2024; 506
- **Liouville models of particle-laden flow** *PHYSICS OF FLUIDS*
  Dominguez-Vazquez, D., Jacobs, G. B., Tartakovsky, D. M.
  2024; 36 (6)
- **Extended dynamic mode decomposition for model reduction in fluid dynamics simulations** *PHYSICS OF FLUIDS*
  Libero, G., Chiofalo, A., Ciriello, V., Tartakovsky, D. M.
  2024; 36 (6)
- **Polynomial chaos enhanced by dynamic mode decomposition for order-reduction of dynamic models** *ADVANCES IN WATER RESOURCES*
  Libero, G., Tartakovsky, D. M., Ciriello, V.
  2024; 186
- **Neural Oscillators for Generalization of Physics-Informed Machine Learning**
  Kapoor, T., Chandra, A., Tartakovsky, D. M., Wang, H., Nunez, A., Dollevoet, R.
  edited by Wooldridge, M., Dy, J., Natarajan, S.
  ASSOC ADVANCEMENT ARTIFICIAL INTELLIGENCE.2024: 13059-13067
- **ROLE OF PHYSICS IN PHYSICS-INFORMED MACHINE LEARNING** *JOURNAL OF MACHINE LEARNING FOR MODELING AND COMPUTING*
  Chandra, A., Bakarji, J., Tartakovsky, D. M.
  2024; 5 (1): 85-97
- **MACHINE-LEARNED INFERENCE OF FRACTURE FLOWRATE FROM TEMPERATURE LOGS** *JOURNAL OF MACHINE LEARNING FOR MODELING AND COMPUTING*
  Yang, X., Horne, R. N., Tartakovsky, D. M.
  2024; 5 (3): 31-45
- **Surrogate models of heat transfer in fractured rock and their use in parameter estimation** *COMPUTERS & GEOSCIENCES*
  Song, G., Roubinet, D., Wang, X., Li, G., Song, X., Tartakovsky, D. M.
  2024; 183
- **Feature-informed data assimilation** *JOURNAL OF COMPUTATIONAL PHYSICS*
  Srivastava, A., Kang, W., Tartakovsky, D. M.
  2023; 494
- **DRIPS: A framework for dimension reduction and interpolation in parameter space** *JOURNAL OF COMPUTATIONAL PHYSICS*
  Lu, H., Tartakovsky, D. M.
  2023; 493
- **Parsimonious models of in-host viral dynamics and immune response** *APPLIED MATHEMATICS LETTERS*
  Lu, H., Giannino, F., Tartakovsky, D. M.
  2023; 145
- **Hypertonic treatment of acute respiratory distress syndrome.** *Frontiers in bioengineering and biotechnology*
  Li, W., Martini, J., Intaglietta, M., Tartakovsky, D. M.
  2023; 11: 1250312
- **Effective Models of Heat Conduction in Composite Electrodes** *JOURNAL OF THE ELECTROCHEMICAL SOCIETY*
  Li, W., Tartakovsky, D. M.
  2023; 170 (10)

- **Uncertain characterization of reservoir fluids due to brittleness of equation of state regression** *GEOENERGY SCIENCE AND ENGINEERING*
  Fulchignoni, L., Tartakovsky, D. M.
  2023; 228
- **Probabilistic forecasting of cumulative production of reservoir fluid with uncertain properties** *GEOENERGY SCIENCE AND ENGINEERING*
  Fulchignoni, L., Santim, C., Tartakovsky, D. M.
  2023; 227
- **Discovery of sparse hysteresis models for piezoelectric materials** *APPLIED PHYSICS LETTERS*
  Chandra, A., Daniels, B., Curti, M., Tiels, K., Lomonova, E. A., Tartakovsky, D. M.
  2023; 122 (21)
- **Screening of Electrolyte-Anode Buffers to Suppress Lithium Dendrite Growth in All-Solid-State Batteries** *JOURNAL OF THE ELECTROCHEMICAL SOCIETY*
  Li, W., Tchelepi, H. A., Tartakovsky, D. M.
  2023; 170 (5)
- **Fast and Accurate Estimation of Evapotranspiration for Smart Agriculture** *WATER RESOURCES RESEARCH*
  Li, W., Tartakovsky, D. M.
  2023; 59 (4)
- **Method of Distributions for Two-Phase Flow in Heterogeneous Porous Media** *WATER RESOURCES RESEARCH*
  Yang, H., Tchelepi, H. A. A., Tartakovsky, D. M. M.
  2022; 58 (12)
- **Information geometry of physics-informed statistical manifolds and its use in data assimilation** *JOURNAL OF COMPUTATIONAL PHYSICS*
  Boso, F., Tartakovsky, D. M.
  2022; 467
- **Deep Learning for Simultaneous Inference of Hydraulic and Transport Properties** *WATER RESOURCES RESEARCH*
  Zhou, Z., Zabaras, N., Tartakovsky, D. M.
  2022; 58 (10)
- **Impact of Carbon Binder Domain on the Performance of Lithium-metal Batteries** *JOURNAL OF THE ELECTROCHEMICAL SOCIETY*
  Boso, F., Li, W., Um, K., Tartakovsky, D. M.
  2022; 169 (10)
- **Autonomous learning of nonlocal stochastic neuron dynamics.** *Cognitive neurodynamics*
  Maltba, T. E., Zhao, H., Tartakovsky, D. M.
  2022; 16 (3): 683-705
- **Stability-Guided Strategies to Mitigate Dendritic Growth in Lithium-Metal Batteries** *JOURNAL OF THE ELECTROCHEMICAL SOCIETY*
  Li, W., Tchelepi, H. A., Ju, Y., Tartakovsky, D. M.
  2022; 169 (6)
- **Effective Representation of Active Material and Carbon Binder in Porous Electrodes** *JOURNAL OF THE ELECTROCHEMICAL SOCIETY*
  Li, W., Tartakovsky, D. M.
  2022; 169 (4)
- **From Fluid Flow to Coupled Processes in Fractured Rock: Recent Advances and New Frontiers** *REVIEWS OF GEOPHYSICS*
  Viswanathan, H. S., Ajo-Franklin, J., Birkholzer, J. T., Carey, J. W., Guglielmi, Y., Hyman, J. D., Karra, S., Pyrak-Nolte, L. J., Rajaram, H., Srinivasan, G., Tartakovsky, D. M.
  2022; 60 (1)
- **POLYNOMIAL CHAOS EXPANSIONS FOR STIFF RANDOM ODEs** *SIAM JOURNAL ON SCIENTIFIC COMPUTING*
  Shi, W., Tartakovsky, D. M.
  2022; 44 (3): A1021-A1046
- **Physics-informed neural networks for modelling anisotropic and bi-anisotropic electromagnetic constitutive laws through indirect data**

Chandra, A., Curti, M., Tiels, K., Lomonova, E. A., Tartakovsky, D. M.
edited by Ishibuchi, H., Kwoh, C. K., Tan, A. H., Srinivasan, D., Miao, C., Trivedi, A., Crockett, K.
IEEE.2022: 1451-1459

- **Data-driven sparse discovery of hysteresis models for piezoelectric actuators**
Chandra, A., Curti, M., Tiels, K., Lomonova, E. A., Tartakovsky, D. M., IEEE
IEEE.2022

- **Thermal Experiments for Fractured Rock Characterization: Theoretical Analysis and Inverse Modeling** *WATER RESOURCES RESEARCH*
Zhou, Z., Roubinet, D., Tartakovsky, D. M.
2021; 57 (12)

- **Autonomous learning of nonlocal stochastic neuron dynamics** *COGNITIVE NEURODYNAMICS*
Maltba, T. E., Zhao, H., Tartakovsky, D. M.
2021

- **Mutual information for explainable deep learning of multiscale systems** *JOURNAL OF COMPUTATIONAL PHYSICS*
Taverniers, S., Hall, E. J., Katsoulakis, M. A., Tartakovsky, D. M.
2021; 444

- **Estimation of Evapotranspiration Rates and Root Water Uptake Profiles From Soil Moisture Sensor Array Data** *WATER RESOURCES RESEARCH*
Li, W., Wainwright, H. M., Yan, Q., Zhou, H., Dafflon, B., Wu, Y., Versteeg, R., Tartakovsky, D. M.
2021; 57 (11)

- **Extended dynamic mode decomposition for inhomogeneous problems** *JOURNAL OF COMPUTATIONAL PHYSICS*
Lu, H., Tartakovsky, D. M.
2021; 444

- **A model of anemic tissue perfusion after blood transfusion shows critical role of endothelial response to shear stress stimuli.** *Journal of applied physiology (Bethesda, Md. : 1985)*
Li, W., Tsai, A. G., Intaglietta, M., Tartakovsky, D. M.
2021

- **Consensus Equilibrium for Subsurface Delineation** *WATER RESOURCES RESEARCH*
Yang, H., Lin, Y., Wohlberg, B., Tartakovsky, D. M.
2021; 57 (10)

- **Exponential time differencing for problems without natural stiffness separation** *COMPUTATIONAL GEOSCIENCES*
Dendumrongsup, N., Tartakovsky, D. M.
2021

- **Data-driven discovery of coarse-grained equations** *JOURNAL OF COMPUTATIONAL PHYSICS*
Bakarji, J., Tartakovsky, D. M.
2021; 434

- **GINNs: Graph-Informed Neural Networks for multiscale physics** *JOURNAL OF COMPUTATIONAL PHYSICS*
Hall, E. J., Taverniers, S., Katsoulakis, M. A., Tartakovsky, D. M.
2021; 433

- **Probabilistic Reconstruction of Hydrofacies With Support Vector Machines** *WATER RESOURCES RESEARCH*
Dendumrongsup, N., Tartakovsky, D. M.
2021; 57 (5)

- **Hybrid models of chemotaxis with application to leukocyte migration.** *Journal of mathematical biology*
Lu, H., Um, K., Tartakovsky, D. M.
2021; 82 (4): 23

- **Lagrangian models of particle-laden flows with stochastic forcing: Monte Carlo, moment equations, and method of distributions analyses** *PHYSICS OF FLUIDS*
Dominguez-Vazquez, D., Jacobs, G. B., Tartakovsky, D. M.

2021; 33 (3)

- **Temperature estimation from current and voltage measurements in lithium-ion battery systems** *JOURNAL OF ENERGY STORAGE*
  Wang, P., Yang, L., Wang, H., Tartakovsky, D. M., Onori, S.
  2021; 34
- **METHOD OF DISTRIBUTIONS FOR SYSTEMS WITH STOCHASTIC FORCING** *INTERNATIONAL JOURNAL FOR UNCERTAINTY QUANTIFICATION*
  Rutjens, R. J. L., Jacobs, G. B., Tartakovsky, D. M.
  2021; 11 (2): 83–104
- **DYNAMICS OF DATA-DRIVEN AMBIGUITY SETS FOR HYPERBOLIC CONSERVATION LAWS WITH UNCERTAIN INPUTS** *SIAM JOURNAL ON SCIENTIFIC COMPUTING*
  Boso, F., Boskos, D., Cortes, J., Martinez, S., Tartakovsky, D. M.
  2021; 43 (3): A2102-A2129
- **Tensor methods for the Boltzmann-BGK equation** *JOURNAL OF COMPUTATIONAL PHYSICS*
  Boelens, A. M. P., Venturi, D., Tartakovsky, D. M.
  2020; 421
- **Solute dispersion in bifurcating networks** *JOURNAL OF FLUID MECHANICS*
  Zimmerman, R. A., Tartakovsky, D. M.
  2020; 901
- **Markov chain Monte Carlo with neural network surrogates: application to contaminant source identification** *STOCHASTIC ENVIRONMENTAL RESEARCH AND RISK ASSESSMENT*
  Zhou, Z., Tartakovsky, D. M.
  2020
- **Estimation of distributions via multilevel Monte Carlo with stratified sampling** *JOURNAL OF COMPUTATIONAL PHYSICS*
  Taverniers, S., Tartakovsky, D. M.
  2020; 419
- **Accelerated Multilevel Monte Carlo With Kernel-Based Smoothing and Latinized Stratification** *WATER RESOURCES RESEARCH*
  Taverniers, S., Bosma, S. B. M., Tartakovsky, D. M.
  2020; 56 (9)
- **Learning on dynamic statistical manifolds** *PROCEEDINGS OF THE ROYAL SOCIETY A-MATHEMATICAL PHYSICAL AND ENGINEERING SCIENCES*
  Boso, F., Tartakovsky, D. M.
  2020; 476 (2239): 20200213
- **Lagrangian dynamic mode decomposition for construction of reduced-order models of advection-dominated phenomena** *JOURNAL OF COMPUTATIONAL PHYSICS*
  Lu, H., Tartakovsky, D. M.
  2020; 407
- **Analytical model for gravity segregation of horizontal multiphase flow in porous media** *PHYSICS OF FLUIDS*
  Rabinovich, A., Bedrikovetsky, P., Tartakovsky, D. M.
  2020; 32 (4)
- **Modified immersed boundary method for flows over randomly rough surfaces** *JOURNAL OF COMPUTATIONAL PHYSICS*
  Kwon, C., Tartakovsky, D. M.
  2020; 406
- **Bayesian Update and Method of Distributions: Application to Leak Detection in Transmission Mains** *WATER RESOURCES RESEARCH*
  Alawadhi, A., Tartakovsky, D. M.
  2020; 56 (2)
- **Method of distributions for quantification of geologic uncertainty in flow simulations** *Method of distributions for quantification of geologic uncertainty in flow simulations*

Yang, H. J., Boso, F., Tchelepi, H. A., Tartakovsky, D. M.
2020

- **PREDICTION ACCURACY OF DYNAMIC MODE DECOMPOSITION** *SIAM JOURNAL ON SCIENTIFIC COMPUTING*
  Lu, H., Tartakovsky, D. M.
  2020; 42 (3): A1639–A1662
- **Data-Informed Method of Distributions for Hyperbolic Conservation Laws** *SIAM Journal on Scientific Computing*
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