



## Daniel Tartakovsky

Professor of Energy Science Engineering

Energy Science & Engineering

 Curriculum Vitae available Online

### Bio

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#### ACADEMIC APPOINTMENTS

- Professor, Energy Science & Engineering
- Member, Bio-X
- Member, Wu Tsai Human Performance Alliance
- 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

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### 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 (electrochemistry for 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

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### COURSES

#### 2023-24

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

#### 2022-23

- Applied Mathematics in Reservoir Engineering: ENERGY 281 (Spr)
- ERE Master's Graduate Seminar: ENERGY 351 (Aut)
- ERE PhD Graduate Seminar: ENERGY 352 (Aut)
- Uncertainty Quantification in Data-Centric Simulations: ENERGY 160, ENERGY 260 (Win)

#### 2021-22

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

### STANFORD ADVISEES

#### Doctoral Dissertation Reader (AC)

Mohammad Aljubran, Tiffany Fan, Cedric Fraces Gasmi, Sara Ha, Filippos Kostakis

**Postdoctoral Faculty Sponsor**

Juliane Krueger

**Doctoral Dissertation Advisor (AC)**

Henrique Bittencourt Netto Monteiro, Rasim Hasanzade, Adrienne Propp, Apoorv Srivastava

**Master's Program Advisor**

Lama El Halabi

**Doctoral (Program)**

Bex Abylkhani, Ciro Guimaraes, Shaunak Joshi, Xiaoyu Yang

**Publications**

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**PUBLICATIONS**

- **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
- **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
- **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., Tartakovsky, D. 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., Zabarar, 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., 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. 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. 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. 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*  
Boso, F., Tartakovsky, D. M.  
2020; 42 (1): 25
- **Resource-Constrained Model Selection for Uncertainty Propagation and Data Assimilation** *SIAM-ASA JOURNAL ON UNCERTAINTY QUANTIFICATION*  
Yang, L., Wang, P., Tartakovsky, D. M.  
2020; 8 (3): 1118–38
- **Stochastic self-tuning hybrid algorithm for reaction-diffusion systems** *JOURNAL OF CHEMICAL PHYSICS*  
Ruiz-Martinez, A., Bartol, T. M., Sejnowski, T. J., Tartakovsky, D. M.  
2019; 151 (24): 244117
- **Distribution-Based Global Sensitivity Analysis in Hydrology** *WATER RESOURCES RESEARCH*  
Ciriello, V., Lauriola, I., Tartakovsky, D. M.  
2019
- **Probabilistic Forecast of Single-Phase Flow in Porous Media With Uncertain Properties** *WATER RESOURCES RESEARCH*  
Yang, H., Boso, F., Tchelepi, H. A., Tartakovsky, D. M.  
2019
- **Efficient gHMC Reconstruction of Contaminant Release History** *FRONTIERS IN ENVIRONMENTAL SCIENCE*  
Barajas-Solano, D. A., Alexander, F. J., Anghel, M., Tartakovsky, D. M.  
2019; 7
- **Diffusion in Porous Media: Phenomena and Mechanisms** *TRANSPORT IN POROUS MEDIA*  
Tartakovsky, D. M., Dentz, M.  
2019; 130 (1): 105–27
- **Causality and Bayesian Network PDEs for multiscale representations of porous media** *JOURNAL OF COMPUTATIONAL PHYSICS*  
Um, K., Hall, E. J., Katsoulakis, M. A., Tartakovsky, D. M.  
2019; 394: 658–78
- **Microstructural heterogeneity drives reaction initiation in granular materials** *APPLIED PHYSICS LETTERS*  
Bakarji, J., Tartakovsky, D. M.  
2019; 114 (25)
- **A Mechanistic Analysis of Possible Blood Transfusion Failure to Increase Circulatory Oxygen Delivery in Anemic Patients** *ANNALS OF BIOMEDICAL ENGINEERING*  
Zimmerman, R. A., Tsai, A. G., Intaglietta, M., Tartakovsky, D. M.  
2019; 47 (4): 1094–1105
- **A Mechanistic Analysis of Possible Blood Transfusion Failure to Increase Circulatory Oxygen Delivery in Anemic Patients.** *Annals of biomedical engineering*  
Zimmerman, R. A., Tsai, A. G., Intaglietta, M., Tartakovsky, D. M.  
2019
- **Quantification of Predictive Uncertainty in Models of FtsZ ring assembly in Escherichia coli.** *Journal of theoretical biology*

- Ye, Y. n., Ruiz-Martinez, A. n., Wang, P. n., Tartakovsky, D. M.  
2019; 110006
- **Method of Distributions for Water Hammer Equations With Uncertain Parameters** *WATER RESOURCES RESEARCH*  
Alawadhi, A., Boso, F., Tartakovsky, D. M.  
2018; 54 (11): 9398–9411
  - **Nonlocal PDF methods for Langevin equations with colored noise** *JOURNAL OF COMPUTATIONAL PHYSICS*  
Maltba, T., Gremaud, P. A., Tartakovsky, D. M.  
2018; 367: 87–101
  - **Information-Theoretic Approach to Bidirectional Scaling** *WATER RESOURCES RESEARCH*  
Boso, F., Tartakovsky, D. M.  
2018; 54 (7): 4916–28
  - **Probabilistic Forecasting of Nitrogen Dynamics in Hyporheic Zone** *WATER RESOURCES RESEARCH*  
Boso, F., Marzadri, A., Tartakovsky, D. M.  
2018; 54 (7): 4417–31
  - **Interpretation of Heat-Pulse Tracer Tests for Characterization of Three-Dimensional Velocity Fields in Hyporheic Zone** *WATER RESOURCES RESEARCH*  
Zlotnik, V., Tartakovsky, D. M.  
2018; 54 (6): 4028–39
  - **Efficient models of polymerization applied to FtsZ ring assembly in Escherichia coli** *PROCEEDINGS OF THE NATIONAL ACADEMY OF SCIENCES OF THE UNITED STATES OF AMERICA*  
Ruiz-Martinez, A., Bartol, T. M., Sejnowski, T. J., Tartakovsky, D. M.  
2018; 115 (19): 4933–38
  - **The frequency domain approach to analyse field-scale miscible flow transport experiments in the soils** *BIOSYSTEMS ENGINEERING*  
Severino, G., Toraldo, G., Tartakovsky, D. M.  
2018; 168: 96–104
  - **Hydrodynamic dispersion in a tube with diffusive losses through its walls** *JOURNAL OF FLUID MECHANICS*  
Zimmerman, R. A., Severino, G., Tartakovsky, D. M.  
2018; 837: 546-561
  - **Global sensitivity analysis of multiscale properties of porous materials** *JOURNAL OF APPLIED PHYSICS*  
Um, K., Zhang, X., Katsoulakis, M., Plechac, P., Tartakovsky, D. M.  
2018; 123 (7)
  - **A Hybrid Multiscale Model of Miscible Reactive Fronts** *WATER RESOURCES RESEARCH*  
Siuliukina, N., Tartakovsky, D. M.  
2018; 54 (1): 61–71
  - **Parallel tensor methods for high-dimensional linear PDEs** *Journal of Computational Physics*  
Boelens, A. M., Venturi, D., Tartakovsky, D. M.  
2018; 375: 519 - 539
  - **Effects of Hydraulic Soil Properties on Vegetation Pattern Formation in Sloping Landscapes** *BULLETIN OF MATHEMATICAL BIOLOGY*  
Severino, G., Giannino, F., Carteni, F., Mazzoleni, S., Tartakovsky, D. M.  
2017; 79 (12): 2773–84
  - **Effects of Hydraulic Soil Properties on Vegetation Pattern Formation in Sloping Landscapes.** *Bulletin of mathematical biology*  
Severino, G., Giannino, F., Carteni, F., Mazzoleni, S., Tartakovsky, D. M.  
2017; 79 (12): 2773-2784
  - **Impact of Hydrogeological Uncertainty on Estimation of Environmental Risks Posed by Hydrocarbon Transportation Networks** *WATER RESOURCES RESEARCH*  
Ciriello, V., Lauriola, I., Bonvicini, S., Cozzani, V., Di Federico, V., Tartakovsky, D. M.  
2017; 53 (11): 8686–97



- **Estimation of Intrinsic Length Scales of Flow in Unsaturated Porous Media** *WATER RESOURCES RESEARCH*  
Assouline, S., Ciriello, V., Tartakovsky, D. M.  
2017; 53 (11): 9980–87
- **Posttransfusion Increase of Hematocrit per se Does Not Improve Circulatory Oxygen Delivery due to Increased Blood Viscosity** *ANESTHESIA AND ANALGESIA*  
Zimmerman, R., Tsai, A. G., Vazquez, B. Y., Cabrales, P., Hofmann, A., Meier, J., Shander, A., Spahn, D. R., Friedman, J. M., Tartakovsky, D. M., Intaglietta, M.  
2017; 124 (5): 1547-1554
- **Optimal design of nanoporous materials for electrochemical devices** *APPLIED PHYSICS LETTERS*  
Zhang, X., Tartakovsky, D. M.  
2017; 110 (14)
- **An analytical model for carrier-facilitated solute transport in weakly heterogeneous porous media** *APPLIED MATHEMATICAL MODELLING*  
Severino, G., Campagna, R., Tartakovsky, D. M.  
2017; 44: 261-273
- **On the use of reverse Brownian motion to accelerate hybrid simulations** *JOURNAL OF COMPUTATIONAL PHYSICS*  
Bakarji, J., Tartakovsky, D. M.  
2017; 334: 68-80
- **A tightly-coupled domain-decomposition approach for highly nonlinear stochastic multiphysics systems** *JOURNAL OF COMPUTATIONAL PHYSICS*  
Taverniers, S., Tartakovsky, D. M.  
2017; 330: 884-901
- **Doubly Penalized LASSO for Reconstruction of Biological Networks** *PROCEEDINGS OF THE IEEE*  
Asadi, B., Maurya, M. R., Tartakovsky, D. M., Subramaniam, S.  
2017; 105 (2): 319-329
- **Effective Ion Diffusion in Charged Nanoporous Materials** *JOURNAL OF THE ELECTROCHEMICAL SOCIETY*  
Zhang, X., Tartakovsky, D. M.  
2017; 164 (4): E53-E61
- **Role of glycocalyx in attenuation of shear stress on endothelial cells: from in vivo experiments to microfluidic circuits**  
Battiato, I., Tartakovsky, D., Cabrales, P., Intaglietta, M., IEEE  
IEEE.2017
- **Noise-driven interfaces and their macroscopic representation** *PHYSICAL REVIEW E*  
Dentz, M., Neuweiler, I., Meheust, Y., Tartakovsky, D. M.  
2016; 94 (5)
- **Particle Methods for Heat Transfer in Fractured Media** *TRANSPORT IN POROUS MEDIA*  
Gisladdottir, V. R., Roubinet, D., Tartakovsky, D. M.  
2016; 115 (2): 311-326
- **Noise-driven interfaces and their macroscopic representation.** *Physical review. E*  
Dentz, M., Neuweiler, I., Méheust, Y., Tartakovsky, D. M.  
2016; 94 (5-1): 052802-?
- **Analytical models of axisymmetric reaction-diffusion phenomena in composite media** *INTERNATIONAL JOURNAL OF HEAT AND MASS TRANSFER*  
Zimmerman, R. A., Jankowski, T. A., Tartakovsky, D. M.  
2016; 99: 425-431
- **Efficient Multiscale Models of Polymer Assembly** *BIOPHYSICAL JOURNAL*  
Ruiz-Martinez, A., Bartol, T. M., Sejnowski, T. J., Tartakovsky, D. M.  
2016; 111 (1): 185-196
- **Shear-Induced Nitric Oxide Production by Endothelial Cells** *BIOPHYSICAL JOURNAL*  
Sriram, K., Laughlin, J. G., Rangamani, P., Tartakovsky, D. M.  
2016; 111 (1): 208-221

- **The method of distributions for dispersive transport in porous media with uncertain hydraulic properties** *WATER RESOURCES RESEARCH*  
Boso, F., Tartakovsky, D. M.  
2016; 52 (6): 4700-4712
- **Conservative tightly-coupled simulations of stochastic multiscale systems** *JOURNAL OF COMPUTATIONAL PHYSICS*  
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