Alireza Doostan

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Smead Aerospace Engineering Sciences Department
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RESEARCH EXPERTISE AND CONTRIBUTIONS	Uncertainty quantification of complex systems, scientific machine learning, data-driven modeling, data compression, randomized algorithms, multi-fidelity modeling, model reduction, design/optimization under uncertainty, statistical inverse modeling, computational mechanics, applications in solid and fluid mechanics, as well as in astrodynamics.

ACADEMIC EXPERIENCE

⋄ **University of Colorado**, Boulder, CO.
Professor, Smead Aerospace Engineering Sciences, August 2021-Present.
Director, Aerospace Mechanics Research Center (AMReC), December 2018-June 2021.
Associate Professor, Smead Aerospace Engineering Sciences, August 2016-August 2021.
Assistant Professor, Smead Aerospace Engineering Sciences, January 2010-August 2016.
Affiliated Faculty, Applied Mathematics, 2011-Present.
Visiting Assistant Professor, Aerospace Engineering Sciences, May 2009-December 2009.

⋄ **Stanford University**, Stanford, CA.
Research Associate, Mechanical Engineering Department, October 2007-December 2009.
Research: *Uncertainty quantification; Model verification and validation with applications in large-scale predictive simulations of hypersonic flight vehicles.*
Mentors: Professor Parviz Moin and Professor Gianluca Iaccarino

⋄ **Stanford University**, Stanford, CA.
Postdoctoral Fellow, Center for Turbulence Research, Mechanical Engineering Department, January 2007-October 2007.
Mentors: Professor Parviz Moin and Professor Gianluca Iaccarino

⋄ **University of Southern California**, Los Angeles, CA.
Postdoctoral Research Associate, Department of Civil and Environmental Engineering, November 2006-January 2007.
Mentor: Professor Roger Ghanem

⋄ **The Johns Hopkins University**, Baltimore, MD.
Graduate Research Assistant, Department of Civil Engineering, 2003-2006.

OTHER RESEARCH APPOINTMENTS

⋄ **National Renewable Energy Laboratory (NREL)**, Golden, CO.
Part time (20%) sabbatical appointment in Computational Math group, December 2017-August 2018, focusing on machine learning and stochastic optimization techniques.

EDUCATION

⋄ **The Johns Hopkins University**, Baltimore, MD.
Ph.D. in Structural Engineering, GPA: 4.0/4.0, 2003-2007.

Dissertation title: *Probabilistic construction and numerical analysis of model verification and validation.*
Advisor: Professor Roger Ghanem

⋄ **The Johns Hopkins University**, Baltimore, MD.
M.A. in Applied Mathematics and Statistics, GPA: 4.0/4.0, 2005-2007.
Thesis title: *Reduced order representation of complex stochastic systems: A benchmark problem.*
Advisor: Professor Daniel Q. Naiman

⋄ **Sharif University of Technology**, Tehran, Iran.
M.Sc. in Structural Engineering, GPA: 18.37/20.00, 2000-2002.
Thesis title: *Optimum seismic loading of concentric braced frames.*

⋄ **Sharif University of Technology**, Tehran, Iran.
B.Sc. in Civil Engineering, GPA: 17.41/20.00, 1996-2000.

AWARDS/
SCHOLAR-
SHIPS

⋄ Outstanding Research Award of the Smead Aerospace Engineering Sciences Department, 2024.

⋄ United Stated Association for Computational Mechanics (USACM) Fellow, 2023 - present.

⋄ Distinguished Performance Award of the Smead Aerospace Engineering Sciences Department, 2022.

⋄ H. Joseph Smead Faculty Fellow, College of Engineering, CU Boulder, 2019-2021.

⋄ The Research & Innovation Office (RIO) Faculty Fellows Program, CU Boulder, 2018.

⋄ Charles A. Hutchinson Memorial Teaching Award, College of Engineering, CU Boulder, 2017.

⋄ Rome Faculty Fellowship, College of Engineering, CU Boulder, 2016-2019.

⋄ Outstanding Teaching and Mentoring Award of the Aerospace Engineering Sciences Department, 2016.

⋄ Dean's Outstanding Teaching Award, 2015.

⋄ CU Boulder Provost's Faculty Achievement Award, 2015.

⋄ NSF Early Career Research Award, 2015-2020.

⋄ Outstanding Junior Faculty Award of the Aerospace Engineering Sciences Department, 2015.

⋄ AIAA-Rocky Mountain Educator of Year (College) award, 2015.

⋄ DOE ASCR Early Career Research Award, 2011-2016.

⋄ Summer school scholarship, Stanford University, Center for Turbulence Research, 2010.

⋄ Postdoctoral Fellowship, Stanford University, Center for Turbulence Research, January 2007-October 2007.

⋄ APSIH award of Society of Iranian Engineers & Architects, 2006.

⋄ IASCE Student Scholarship for the year 2005-2006.

⋄ PMC04 conference travel award 2004.

⋄ Outstanding graduate student prize of civil engineering, Sharif University of Technology, Highest GPA in department, 2002.

⋄ Bronze medal of the 5th Iranian Civil Engineering Scientific Olympiad, 2000.

⋄ Outstanding undergraduate student prize of civil engineering, Sharif University of Technology, 2nd highest GPA in department, 2000.

⋄ Award of the Civil Engineering graduate entrance examination, Ranked 3rd among 10000 participants, 2000.

TEACHING
ACTIVITY

⋄ **Graduate Courses Taught at CU Boulder**.

- ASEN 6412/MCEN 6228, Uncertainty Quantification, Spring 2011, Spring 2014, Spring 2016, Spring 2020, Spring 2024.
- ASEN 5012/MCEN 5023, Mechanics of Aerospace Structures, Fall 2010, Fall 2011, Fall 2021.
- ASEN 5022, Dynamics of Aerospace Structures, Spring 2010, Spring 2015, Spring 2017, Spring 2019, Spring 2021, Spring 2023.

◇ **Undergraduate Courses Taught at CU Boulder**.

- ASEN 1009, Aerospace Seminar, Fall 2023.
- ASEN 3712, Structures, Fall 2020, Spring 2022, Fall 2023.
- ASEN 2701, Statics, Structures & Materials, Fall 2012, Fall 2013, Fall 2014, Fall 2015, Fall 2018, Fall 2019, and Fall 2024.

◇ **Graduate Course Taught at Stanford University**.

- ME 470, Uncertainty Quantification and Probabilistic Methods, Spring 2009 (jointly with Gianluca Iaccarino).

◇ **Short Courses/Tutorials**.

- Short course on Uncertainty Quantification, National Renewable Energy Laboratory, January 18, 2018.
- Short course on Uncertainty Quantification, NASA JPL, Pasadena, CA, September 18, 2017 (jointly with Brandon Jones).
- Short course on Numerical Methods for Uncertainty Propagation, USNCCM13 Conference, San Diego, CA, July 26, 2015.
- Tutorial lecture on Uncertainty Quantification, RTO-PSAAP-VKI Short Course on Uncertainty Quantification, Stanford University, Stanford, CA, June 2-4, 2014.
- Tutorial lecture on Uncertainty Quantification, SIAM CSE09, Miami, FL, March 2-6, 2009.

◇ **Course Assisted at The Johns Hopkins University**.

- Statics and Mechanics of Materials, Fall 2005.

◇ **Comprehensive Exams (C)/Thesis Defense (D) Committees**.

- Jennifer Mindock (Ph.D., AES, C, D), Stephanie Golmon (Ph.D., AES, C, D), Alireza Nejadmalayeri (Ph.D., ME, C, D), Liye Zhu (Ph.D., ME, C, D), Chris DeLuca (Ph.D., AES, C, D), Kedar Chitale (Ph.D., AES, C, D), Donald Gipe (MS., AES, D), Qiong Guo (MS., AES, D), Mohammad reza Kabiri (Ph.D., CEAE, C, D), Dave Biagioni (Ph.D., APM, C, D), Ben Dunham (Ph.D., AES, C), Hanchao Qi (Ph.D., ECEE, C, D), Yan Zhang (Ph.D., CS, C, D), Micholas Mati (MS., AES, D), Nicholas Jenkins (Ph.D., AES, C, D), Peter Coffin (Ph.D., AES, C, D), Nurlybek Kasimov (Ph.D., ME, C), Michael Trowbridge (MS., AES, D), Eric Brown-Dymkoski (Ph.D., ME, C, D), Sibylle Walter (Ph.D., AES, C, D), Carlos Villanueva (Ph.D., AES, C, D), Matthew Lawry (Ph.D., AES, C, D), Farhad Pourkamali (Ph.D., ECEE, C, D), Juliana Feldhacker (Ph.D., AES, C, D), Umut Akalp (Ph.D., CEAE, C, D), Roger Laurence (Ph.D., AES, C, D), Ashesh Sharma (Ph.D., AES, C, D), Marco Balducci (Ph.D., AES, C,D), Romik Khajehtourian (Ph.D., AES, C, D), Wayne Mitchell (Ph.D., APPM, D), Marcus Geiss (Ph.D., AES, C, D), Ignas Satkauskas (Ph.D., APPM, C, D), Joseph Benzaken (Ph.D., APPM, C, D), Toshiki Nagai (Ph.D., AES, C, D), Eric Peters (Ph.D., AES, C, D), Xiaoyong Bai (Ph.D., CEAE, D), Ryan Skinner (Ph.D., AES, C), Nathan O'Neill (MS., AES, D), Zachary Grey (Ph.D., AES, C, D), Daniel Lee (MS., AES, D), Kevin Bieri (MS., AES, D), Osman Malik (Ph.D., APPM, C, D), Mathias Schmidt (Ph.D., AES, C,D), Keenan Dobble (Ph.D., AES, C,D), Dasha Gloutak (Ph.D., AES, C, D), Julian Quick (Ph.D., ME, C, D), Aviral Prakash (Ph.D., AES, C, D), Basu Parmar (Ph.D.,

AES, C, D), Samuel Albert (Ph.D., AES, C, D), John Jackson (Ph.D., AES, C), Luca De Beni (Ph.D., AES, C, D), Przemyslaw Rostkowski (Ph.D., UIUC, D), Changhee Min (MS., KAIST, D), Jacob Tersigni (MS., AES, D), James Nichols (Ph.D., AES, C), Spencer Dansereau (Ph.D., AES, C, D), Nicholas Carter (Ph.D., AES, C), Chi Tran (Ph.D., APPM, C).

RESEARCH
MENTORING

◇ **Ph.D. Students Supervised**.

1. Mohit Garg, Thesis: Algorithms for scientific data reduction, 2024 – present (co-advised with Prof. Stephen Becker, APPM).

2. Conor Rowan, Thesis: Machine learning methods for homogenization and optimization of multi-scale systems, 2022 – present (co-advised by Kurt Maute).

3. Nuojin Cheng, Thesis: Multi-fidelity methods for uncertainty quantification, 2021 – present.

4. Abbigail Schmidt, Thesis: Physics-informed data driven modeling, 2021 – present (co-advised with Prof. Fatemeh Pourahmadian, Civil Engineering).

5. Grant Norman, Thesis: Machine learning methods for data-driven constitutive modeling, 2021 – present

6. Kevin Doherty Thesis: Unstructured PDE data compression, 2021 – 2024 (co-advised with Prof. Stephen Becker, APPM).

7. Alex Cortiella, Thesis: Data-driven model development and identification of dynamical systems, 2018 - 2021. Currently at NREL.

8. Alec Dunton, Thesis: Matrix Methods for Low-Rank Compression in Large-Scale Applications, 2017 - 2021. Currently at LLNL.

9. Felix Newberry, Thesis: Multi-Fidelity Uncertainty Quantification: Model Design and Software Tools for Immersive Simulations, 2016 - 2021. Currently at Aetna.

10. Paul Diaz, Thesis: Low-Dimensional Representations for Uncertainty Quantification and Data-Driven Modeling, 2016 - 2020. Currently a postdoc at NREL.

11. Hillary Fairbanks, Thesis: Low-rank, multi-fidelity methods for uncertainty quantification of high-dimensional systems, 2014 - 2018. Currently a postdoc at LLNL.

12. Mohammad Hadigol, Thesis: Uncertainty quantification of coupled problems with application to Lithium-ion batteries, 2011 - 2016. Currently an associate scientist at Certara Strategic Consulting.

13. Ji Peng, Thesis: Uncertainty quantification via sparse polynomial chaos expansion, 2011 - 2015. Currently data scientist at Earnin.

14. Christapher G. Lang, Thesis: Data-driven uncertainty modeling with X-FEM, 2010 - 2013 (principal advisor: Kurt Maute, co-advisor: Alireza Doostan. Currently a research staff at NASA Langley.

◇ **MS Students Supervised**.

1. Jothi Thondiraj, Thesis: High-dimensional uncertainty quantification and reliability analysis, 2021 – 2024.

2. Michaela Farr, Thesis: Multi-fidelity methods for uncertainty quantification, 2015 – 2017.

◇ **Undergraduate (or BS-MS) Students Supervised**.

1. Noah Francis, Research Project: Deep neural networks for uncertainty quantification, Summer 2019 - Spring 2020.

2. Matthew Hurst, Research Project: Multi-fidelity uncertainty quantification with application to airfoil modeling (principal advisor: Alireza Doostan, co-advisor: John Evans)

3. Emily Stohl, Research Project: Experimental design for sampling-based uncertainty quantification, Summer 2015.

4. Garrett Brown, Research Project: Finite element simulation tools for fluid-structure interaction, Spring and Summer 2014.

5. Andrew Tsoi, Research Project: Parameter estimation and model calibration using surrogate modeling, Spring 2014.

⬦ **Post-Doctoral Associates Mentored**.

1. Deborah Pereg, Project: Topics in scientific data reduction (co-mentored by Prof. Stephen Becker, APPM)

2. Audrey Gaymann, Project: UQ and reliability analysis of entry systems, 2023 - present

3. Juan Cardenas, Project: Data-driven machine learning modeling with application to in-space combustion, 2023 - present

4. Angran Li, Project: In situ data compression, 2022 - 2024 (co-mentored by Prof. Stephen Becker, APPM)

5. Alexandre Cortiella, Project: Generative modeling for complex engineering systems, 2022-2023.

6. Weijia Zhan, Project: Uncertainty quantification of plasma structures in earth's ionosphere-thermosphere system, 2022 - 2024 (jointly mentored with Dr. Eric Sutton, CU AES)

7. Przemyslaw Rostkowski, Uncertainty quantification of entry systems, 2023 (co-mentored with Prof. Marco Panesi, UIUC). Currently at Northrop Grumman.

8. Jacqueline Wentz, Project: Machine learning methods for UQ and data-driven recovery of governing equations, October 2020 - 2023. Currently at Sandia.

9. Subhayan De, Project: Topology optimization under uncertainty using stochastic gradient-based methods, 2018 - 2022.

10. Jeffrey Hokanson, Project: Variable-fidelity strategies for UQ of complex systems, December 2020 - 2022. Currently at Numerica.

11. Hee-Sun Choi, Project: Surrogate modeling for atmospheric chemistry and data assimilation, 2020 - 2021

12. Jerrad Hampton, Project: Sparse polynomial chaos expansions via compressive sampling, 2012 - 2018. Currently research assistant professor at UPC, Barcelona, Spain.

13. Matthew Reynolds, Project: Low-rank tensor approximations for uncertainty quantification, 2014 - 2017. Principal advisor: Alireza Doostan; co-advisor: Gregory Beylkin. Currently a researcher IV-Applied Mathematics, NREL.

14. Wouter Edeling, 2015 (principal advisor: Gianluca Iaccarino (Stanford), co-advisor: Alireza Doostan, 50% appointment at CU Boulder)

15. Dave Biagioni, Project: Basis expansion design methods for uncertainty quantification, 2012 - 2014. Principal advisor: Alireza Doostan; Co-advisor: Gregory Beylkin. Currently a computational research Scientist next position: NREL)

JOURNAL PUBLICA-TIONS

* highlights students/postdocs advised/co-advised; ** highlights visitors hosted

⬦ **Published/In Press/Accepted**.

J77. G. Norman*, J. Wentz*, H. Kolla, K. Maute, and A. Doostan, Constrained or Unconstrained? Neural-Network-Based Equation Discovery from Data, *Computer Methods in Applied Mechanics and Engineering*, 436 (2025): 117684

J76. A. Li*, S. Becker, and A. Doostan, Online randomized interpolative decomposition with a posteriori error estimator for temporal PDE data reduction, *Computer Methods in Applied Mechanics and Engineering*, 434 (2025): 117538.

J75. K. Doherty*, S. Becker, and A. Doostan, Mesh-Float-Zip (MFZ): Manifold Harmonic Bases for Unstructured Spatial Data Compression, *Applied Mathematics for Modern Challenges*, 2.4 (2024): 465-489.

J74. H. Malik, P. Weddle, R. King, S. De, A. Doostan, C. Randall, E. Dufek, A. Colclasure, and K. Smith, PINN surrogate of Li-ion battery models for parameter inference. Part II: Regularization and application of the pseudo-2D model, *Journal of Energy Storage* 98, 2024, 113104.

J73. H. Malik, P. Weddle, R. King, S. De, A. Doostan, C. Randall, E. Dufek, A. Colclasure, and K. Smith, PINN surrogate of Li-ion battery models for parameter inference. Part I: Implementation and multi-fidelity hierarchies for the single-particle model, *Journal of Energy Storage*, 98, 2024, 113103.

J72. S. Albert, A. Doostan, and H. Schaub, Dimensionality Reduction for Onboard Modeling of Spatially-Varying Atmospheres, *AIAA Journal of Spacecraft and Rockets*, 2024, 1-13.

J71. W. Zhan*, A. Doostan, E. Sutton, and T. Fang, Quantifying uncertainties in the quiet-time ionosphere-thermosphere using WAM-IPE, *Space Weather*, 22.2, 2024.

J70. N. Cheng*, O. Malik, S. De, S. Becker, and A. Doostan, Bi-fidelity Variational Auto-encoder for Uncertainty Quantification, *Computer Methods in Applied Mechanics and Engineering*, 421, 2024, 116793.

J69. N. Cheng*, Y. Xu, O. Malik, S. Becker, A. Doostan, and A. Narayan, Subsampling of parametric models with bifidelity boosting, *SIAM/ASA Journal on Uncertainty Quantification*, 12.2, 2024, 213-241.

J68. K. Doherty*, C. Simpson, S. Becker, and A. Doostan, QuadConv: Quadrature-Based Convolutions with Applications to Non-Uniform PDE Data Compression, *Journal of Computational Physics*, 498, 2024, 112636.

J67. J. Wentz* and A. Doostan, Derivative-based SINDy (DSINDy): Addressing the challenge of discovering governing equations from noisy data, *Computer Methods in Applied Mechanics and Engineering* 413, 2023, 116096.

J66. S. De*, M. Reynolds, M. Hassanaly, R. King, and A. Doostan, Bi-fidelity Modeling of Uncertain and Partially Unknown Systems using DeepONets, *Computational Mechanics*, 71(6), 2023, 1251-1267.

J65. J. Hokanson*, G. Iaccarino, and A. Doostan, Simultaneous Identification and Denoising of Dynamical Systems, *SIAM SISC*, 45 (4), 2023, A1413-A1437.

J64. J. Wentz* and A. Doostan, GenMod: A Generative Modeling Approach for Spectral Representation of PDEs with Random Inputs, *Journal of Computational Physics*, 472, 2023, 111691.

J63. S. De*, K. Maute, and A. Doostan, Topology Optimization under Microscale Uncertainty using Stochastic Gradients, *Structural and Multidisciplinary Optimization*, 66(1), 2023, 1-28.

J62. A. Cortiella*, KC. Park, and A. Doostan, A Priori Denoising Strategies for Sparse Identification of Nonlinear Dynamical Systems: A Comparative Study, *Journal of Computing and Information Science in Engineering*, 23(1), 2023, 011004.

J61. F. Newberry*, C. Wetterer-Nelson, J. Evans, A. Doostan, K. Jansen, Software Tools to Enable Immersive Simulation, *Engineering with Computers*, 38, 2022, 4697–4713.

J60. L. Jofre and A. Doostan, Rapid Aerodynamic Shape Optimization Under Parametric and Turbulence Model Uncertainty: A Stochastic Gradient Approach, *Structural and Multidisciplinary Optimization* , 65, 2022, 1-13.

J59. H. Pacella, A. Dunton*, A. Doostan, and G. Iaccarino, Task-parallel in-situ Temporal Compression of Large-scale Computational Fluid Dynamics Data, *The International Journal of High Performance Computing Applications*, 36(3), 2022, 388-418.

J58. S. De* and A. Doostan, Neural Network Training Using ℓ_1-regularization and Bi-fidelity Data, *Journal of Computational Physics*, 458, 2022, 111010.

J57. S. De*, BSME. Hai, A. Doostan, and M. Bause, Prediction of ultrasonic guided wave propagation in solid-fluid and their interface under uncertainty using machine learning, *Journal of Engineering Mechanics*, 148 (3), 2022, 04021161

J56. E. Peters, R. Balin, K. Jansen, A. Doostan, and J. Evans, S-Frame Discrepancy Correction Models for Data-Informed Reynolds Stress Closure, *Journal of Computational Physics*, 448, 2022, 110717.

J55. F. Newberry*, J. Hampton, K. Jansen, and A. Doostan, Bi-fidelity Reduced Polynomial Chaos Expansion for Uncertainty Quantification, *Computational Mechanics Journal*, 2021.

J54. S. De*, K. Maute, and A. Doostan, Reliability-based Topology Optimization using Stochastic Gradients, *Structural and Multidisciplinary Optimization*, 64, 2021, 3089-3108.

J53. D. Kozak, S. Becker, A. Doostan, L. Tenorio, Stochastic Subspace Descent, *Computational Optimization and Applications*, 79 (2), 2021, 339-368.

J52. A. Cortiella*, KC. Park, and A. Doostan, Sparse Identification of Nonlinear Dynamical Systems via Reweighted ℓ_1-regularized Least Squares, *Computer Methods in Applied Mechanics and Engineering*, 376, 2021, 113620.

J51. A. Dunton*, L. Jofre, G. Iaccarino, and A. Doostan, Pass-efficient methods for compression of high-dimensional turbulent flow data, *Journal of Computational Physics*, 423, 2020, 109704.

J50. S. De*, J. Britton, M. Reynolds, R. Skinner, K. Jansen, and A. Doostan, On Transfer Learning of Neural Networks using Bi-fidelity Data for Uncertainty Propagation, *International Journal for Uncertainty Quantification*, 10(6), 2020, 543-573.

J49. S. De*, K. Maute, and A. Doostan, Bi-fidelity Stochastic Gradient Descent for Structural Optimization under Uncertainty, *Computational Mechanics Journal*, 66, 2020, 745-771.

J48. S. De*, J. Hampton, K. Maute, and A. Doostan, Topology Optimization Under Uncertainty using a Stochastic Gradient-based Approach, *Structural Multidisciplinary Optimization*, and 62, 2020, 2250-2278.

J47. H. Choi, J.G. Kim, A. Doostan, and K. C. Park, Acceleration of Uncertainty Propagation through Lagrange Multipliers in Partitioned Stochastic Method, *Computer Methods in Applied Mechanics and Engineering*, 362, 2020, 108996.

J46. H.S. Fairbanks*, L. Jofre, G. Geraci, G. Iaccarino, and A. Doostan, A bi-fidelity approximation for uncertainty quantification and sensitivity analysis of irradiated particle-laden turbulence, *Journal of Computational Physics*, 402, 2020, 108996.

J45. P. Pettersson, A. Doostan, and J. Nordstrom, Level Set Methods for Stochastic Discontinuity Detection in Nonlinear Problems, *Journal of Computational Physics*, 392, 2019, 511-531.

J44. R. Skinner, A. Doostan, E. Peters, J. Evans, and K. Jansen, Parametric Study of NACA Airfoils: A Multi-Fidelity Approach, *AIAA Journal*, 57, No. 4., 2019, 1481-1491.

J43. J. Hampton* and A. Doostan, Basis Adaptive Sample Efficient Polynomial Chaos (BASE-PC), *Journal of Computational Physics*, 371, 2018, 20-49.

J42. J. Hampton*, H. Fairbanks*, A. Narayan, and A. Doostan. Parametric/stochastic model reduction: Low-rank representation, non-intrusive bi-fidelity approximation, and convergence analysis, *Journal of Computational Physics*, 368, 2018, 315-332.

J41. P. Diaz*, A. Doostan, and J. Hampton*, Sparse Polynomial Chaos Expansions via Compressed Sensing and D-optimal Design, *Computer Methods in Applied Mechanics and Engineering*, 336, 2018, 640-666.

J40. M. Hadigol* and A. Doostan, Least squares polynomial chaos expansion: a review of sampling strategies, *Computer Methods in Applied Mechanics and Engineering*, 332, 2018, 382-407.

J39. J. Feldhacker, M. Syal, B. Jones, A. Doostan, J. McMahon, and D. Scheeres, Shape Dependence of the Kinetic Deflection of Asteroids, *AIAA Journal of Guidance, Control, and Dynamics*, 40, 2017, 2417-2431.

J38. P. Constantine and A. Doostan, Time-dependent global sensitivity analysis with active subspaces for a lithium ion battery model, *Statistical Analysis & Data Mining*, 10, 2017, 243-262.

J37. M. Balducci, B. Jones, and A. Doostan, Orbit Uncertainty Propagation With Separated Representations, *Celestial Mechanics and Dynamical Astronomy*, 129, 2017, 105-136.

J36. M. Reynolds*, G. Beylkin, and A. Doostan, Optimization via Separated Representations and Canonical Tensor Decompositions, *Journal of Computational Physics*, 348, 2017, 220-230.

J35. H. Fairbanks*, A Doostan, C. Ketelsen, and G. Iaccarino, A Low-rank Control Variate for Multilevel Monte Carlo Simulation of High-dimensional Uncertain Systems, *Journal of Computational Physics*, 341, 2017, 121-139.

J34. D. Schiavazzi, A. Doostan, G. Iaccarino, and A. L. Marsden, A Generalized Multi-resolution Expansion for Uncertainty Propagation with Application to Cardiovascular Modeling, *Computer Methods in Applied Mechanics and Engineering*, 314, 2017, 196-221. (5-year impact factor: **3.915**)

J33. R. Blackwell, O. Sweezy-Schindler, C. Edelmaier, Z. Gergely, P. Flynn, S. Montes, A. Crapo, A. Doostan, J. McIntosh, M. Glaser, and M. Betterton, Contributions of micro-tubule dynamic instability and rotational diffusion to kinetochore capture, *Biophysical Journal*, 112, 2017, 552-563. (5-year impact factor: **3.668**)

J32. M. Reynolds*, A. Doostan, and G. Beylkin, Randomized Alternating Least Squares for Canonical Tensor Decompositions: Application to A PDE With Random Data, *SIAM SISC*, 38, 2016, A2634-A2664. (2015 impact factor: **2.96**)

J31. J. Peng*, J. Hampton*, and A. Doostan, On Polynomial Chaos Expansion via Gradient-enhanced ℓ_1-minimization. *Journal of Computational Physics*, 310, 2016, 440-458. (5-year impact factor: **2.867**)

J30. P. Pettersson, J. Nordstrom, and A. Doostan, A Well-posed and Stable Stochastic Galerkin Formulation of the Incompressible Navier-Stokes Equations with Random Data. *Journal of Computational Physics*, 306, 2016, 92-116.

J29. J. Feldhacker, B. Jones, A. Doostan, and J. Hampton*, Reduced Cost Maneuver Design Using Surrogate Models, *Advances in Space Research*, 57, 2016, 588-603.

J28. M. Hadigol*, K. Maute, and A. Doostan. On Uncertainty Quantification of Lithium-ion Batteries: Application to an $LiC_6/LiCoO_2$ cell, *Journal of Power Sources*, 300, 2015, 507-524. (5-year impact factor: **6.227**)

J27. C. Lang*, A. Sharma, A. Doostan, and K. Maute, Heaviside Enriched Extended Stochastic FEM for Problems with Uncertain Material Interfaces, *Computational Mechanics Journal*, 56, 2015, 753-767.

J26. B. Jones, N. Parish, and A. Doostan, Post-maneuver collision probability estimation using sparse polynomial chaos expansions, *AIAA Journal of Guidance, Control, and Dynamics*, 8, 2015, 1425-1437.

J25. U. Akalp, S. Chu, S. Skaalure, S. Bryant, A. Doostan, and F. Vernerey, Determination of the Polymer-Solvent Interaction Parameter for PEG Hydrogels in Water: Application of a Self Learning Algorithm, *Polymer*, 66, 2015, 135-147. (5-year impact factor: **3.775**)

J24. J. Hampton* and A. Doostan, Coherence Motivated Sampling and Convergence Analysis of Least-Squares Polynomial Chaos Regression, *Computer Methods in Applied Mechanics and Engineering*, 290, 2015, 73-97.

J23. J. Hampton* and A. Doostan, Compressive sampling of chaos expansions: convergence analysis and sampling strategies. *Journal of Computational Physics*, 280, 2015, 363-386. (**As of 2018, listed among JCP's most cited articles published from 2014-2019**)

J22. C. Lang*, D. Makhija, A. Doostan, and K. Maute, A simple and efficient preconditioning scheme for Heaviside enriched XFEM. *Computational Mechanics*, 54, 2014, 1357-1374. (Impact factor: **2.639**)

J21. J. Jagalur-Mohan, O. Sahni, A. Doostan, and A. Oberai, Variational multiscale analysis: the fine-scale Green's function for stochastic partial differential equations. *SIAM/ASA Journal on Uncertainty Quantification*, 2, 2014, 397-422.

J20. D. Schiavazzi**, A. Doostan, and G. Iaccarino. Sparse multiresolution regression for uncertainty propagation. *International Journal for Uncertainty Quantification*, 4, 2014, 303-331.

J19. J. Peng*, J. Hampton*, and A. Doostan. A weighted ℓ_1-minimization approach for sparse polynomial chaos expansions. *Journal of Computational Physics*, 267, 2014, 92-111. (**In 2018, listed among JCP's most cited articles published from 2014-2018**)

J18. M. Hadigol*, A. Doostan, H. Matthies, and R. Niekamp. Partitioned treatment of uncertainty in coupled domain problems: A separated representation approach, *Computer Methods in Applied Mechanics and Engineering*, 274, 2014,103-124.

J17. M. Brezin, A. Doostan, T. Manteuffel, S. McCormick, and J. Ruge. Smoothed Aggregation Algebraic Multigrid for SPDE Problems with Layered Materials, *Numerical Linear Algebra with Applications*, 21, 2014, 239-255.

J16. B. Jones and A. Doostan, Satellite collision probability estimation using polynomial chaos, *Advances in Space Research*, 52(11), 2013, 1860-1875.

J15. A. Doostan, A. Validi*, and G. Iaccarino, A non-intrusive low-rank separated representations of high-dimensional stochastic models, *Computer Methods in Applied Mechanics and Engineering*, 263, 2013, 42-55.

J14. C. Lang*, A. Doostan, and K. Maute, Extended stochastic FEM for heat transfer analysis with uncertain material interfaces, *Computational Mechanics*, 51(6), 2013, 1031-1049.

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B1. J. Hampton* and A. Doostan, Compressive Sampling Methods for Sparse Polynomial Chaos Expansions, Handbook of Uncertainty Quantification, Springer, 2016.

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C8. P. Constantine, A. Doostan, and G. Iaccarino, A hybrid uncertainty propagation scheme for convective heat transfer problems, 49th *AIAA/ASME/ASCE/AHS/ASC Structures, Structural Dynamics, and Materials Conference*, Schaumburg, IL, April 7-10, 2008.

C7. R. Ghanem, J. Red-Horse, and A. Doostan, Modeling and propagation of uncertainty with application to prediction validation, *Symposium on Computational Uncertainty, Applied Vehicle Technology Panel (AVT)*, Athens, Greece, October 1-4, 2007.

C6. R. Ghanem, J. Red-Horse, A. Benjamin, and A. Doostan, Stochastic process model for material properties under incomplete information, 48th *AIAA/ASME/ASCE/AHS/ASC Structures, Structural Dynamics, and Materials Conference*, Honolulu, Hawaii, April 23-26, 2007.

C5. A. Doostan and R. Ghanem, Characterization of stochastic system parameters from experimental data: A Bayesian inference approach, 9th *International Conference on Structural Safety and Reliability*, Rome, Italy, June 19-23, 2005.

C4. R. Ghanem and A. Doostan, A-posteriori error estimates for the spectral stochastic FEM based on hierarchical bases, *ASCE 9th Joint Specialty Conference on Probabilistic Mechanics&Structural Reliability, PMC2004*, Albuquerque, NM, July 26-28, 2004.

C3. H. Moghaddam, I.H. Rasouliha, and A. Doostan, Proper distribution of seismic loads for design of steel frames, 6th *International conference on civil engineering*, Isfahan, Iran, May 2003.

C2. I.H. Rasouliha, H. Moghaddam, and A. Doostan, On the optimum strength distribution in seismic design of structures, *Response of structures to extreme loading, XL2003*, Toronto, Canada, August 3-6 2003.

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R9. M. Hassanaly, P. Weddle, K. Smith, S. De, S., A. Doostan, and R. King, Physics-Informed Neural Network Modeling of Li-Ion Batteries (No. NREL/CP-2C00-82015). *National Renewable Energy Lab.(NREL)*, Golden, CO, 2022.

R8. A. Dunton, L. Jofre, A. Doostan, and G. Iaccarino, Pass-efficient methods for compression of high-dimensional turbulent flow data, *Center for turbulence research, Annual Research Briefs 2017*, Stanford University, 2017.

R7. L. Jofre, G. Geraci, H. Fairbanks, A. Doostan, and G. Iaccarino, Multi-fidelity uncertainty quantification of irradiated particle-laden turbulence, *Center for turbulence research, Annual Research Briefs 2017*, Stanford University, 2017.

R6. P. Constantine, A. Doostan, Q. Wang and G. Iaccarino, A surrogate accelerated Bayesian inverse analysis of the Hyshot II supersonic combustion data. *Center for Turbulence Research, Proceeding of summer program*, Stanford University, 2010.

R5. J. Witteveen, A. Doostan, R. Pecnik, and G. Iaccarino, Uncertainty quantification of the transonic flow around the RAE2822 airfoil, *Center for turbulence research, Annual Research Briefs 2009*, Stanford University, 2009.

R4. A. Doostan, H. Owhadi, A. Lashgari, and G. Iaccarino, Non-adapted sparse approximation of PDEs with stochastic inputs, *Center for turbulence research, Annual Research Briefs 2009*, Stanford University, 2009.

R3. A. Doostan, G. Iaccarino, Breaking the curse of dimensionality for a class of PDEs with stochastic inputs, *Center for turbulence research, Annual Research Briefs 2008*, Stanford University, 2008.

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R1. A. Doostan, G. Iaccarino, and N. Etemadi, A least-squares approximation of high-dimensional uncertain systems, *Center for turbulence research, Annual Research Briefs 2007*, Stanford University, 2007.

PLENARY/KEYNOTE
TALKS

PK4. A. Doostan, J. Wentz, and J. Hokanson, Simultaneous Denoising and Recovery of Dynamical System Equations From Noisy Measurements, 5*th International Conference on Uncertainty Quantification in Computational Sciences and Engineering (UNCECOMP 2023)*, Athens, Greece, 12-14 June 2023.

PK3. A. Doostan, Scalable Design Optimization Under Uncertainty: Stochastic Gradient Approaches, 4*th International Conference on Uncertainty Quantification in Computational Sciences and Engineering (UNCECOMP 2021)*, Athens, Greece, June 21-23, 2021. (Semi-plenary)

PK2. A. Doostan, A Bi-Fidelity, Low-Rank Approximation Technique for Uncertainty Quantification, *USNCCM14*, Montreal, Canada, July 18, 2017. (Keynote)

PK1. A. Doostan, Stochastic PDEs, sparse approximations, and compressive sampling, DOE Applied Mathematics Program Meeting, Reston, VA, October 17-19, 2011. (Plenary)

INVITED
PRESENTA-
TIONS

IP100. A. Doostan, On Multi-fidelity Strategies for Uncertainty Propagation, UT Austin UQ class, April 15, 2024.

IP99. A. Doostan, Model Reduction Techniques for Large-scale PDE Data Compression, Oak Ridge National Lab, April 25, 2024.

IP98. A. Doostan, Data-driven Physics-Constrained Model Recovery, NREL, March 21, 2024.

IP97. J.M. Cardenas, A. Doostan, An Adaptive Sampling Strategy for Multifidelity Uncertainty Quantification. SIAM UQ24, Trieste, Italy, February 27- March-1, 2024.

IP96. A. Doostan, Uncertainty Quantification and Data Management in Complex System Modeling: A Model Reduction Approach, Pasteur Labs, February 2, 2024.

IP95. A. Doostan, Data Compression Techniques for Large-scale PDE Simulations, Duke University, Civil and Environmental Engineering, October 15, 2023.

IP94. A. Doostan, A Short Survey of Uncertainty Quantification Methods in Scientific Applications, NREL, July 23, 2023.

IP93. N. Cheng, A. Doostan, Bi-fidelity Variational Auto-encoder for Uncertainty Quantification. *USNCCM17 2023*, Albuquerque, NM, July 33-27, 2023.

IP92. A. Doostan, Referring to Literature in Papers, AMReC Graduate Student Seminar, CU Boulder, April 19, 2023.

IP91. A. Doostan, Recovering Dynamical Systems from Noisy Measurements, Kyung Hee University, Suwon, South Korea, November 16, 2022.

IP90. A. Doostan, Uncertainty Quantification via Multi-Fidelity Model Reduction, KAIST, Daejeon, South Korea, November 14, 2022.

IP89. S. De and A. Doostan, Bi-fidelity Training of Neural Networks, *Sandia Machine Learning Deep Learning Workshop*, Virtual, July 25-28, 2022.

IP88. J. Wentz and A. Doostan, Discovering governing equations using noisy measurements through projection-based denoising and second order cone programming, *Sandia Machine Learning Deep Learning Workshop*, Virtual, July 25-28, 2022.

IP87. A. Doostan, Recovering Dynamical Systems from Noisy Measurements Using Constrained Optimization, *USACM Thematic Conference on Uncertainty Quantification for Machine Learning Integrated Physics Modeling (UQ-MLIP)*, Crystal City, Arlington, Virginia, August 18, 2022.

IP86. W. Zhan, E. Sutton, A. Doostan, and T. Fang, Quantifying the uncertainties of the ionospheric conditions associated with the solar wind with the WAM-IPE model. *Triennial Earth-Sun Summit (TESS) 2022*, Seattle/Bellevue, WA, August 8-11, 2022.

IP85. W. Zhan, E. Sutton, A. Doostan, and T. Fang, Estimation of the uncertainty of the ionosphere conditions with the WAM-IPE model. *Beacon Satellite Symposium (BSS) 2022*, Chestnut Hill, MA, August 1-5, 2022.

IP84. W. Zhan, E. Sutton, A. Doostan, and T. Fang, Uncertainty Quantification of the Ionospheric Condition moms with the WAM-IPE Model for Varying Solar Wind Parameters. *2022 CEDAR Workshop*, Austin, TX, June 19-24, 2022.

IP83. A. Doostan, Multi-fidelity Uncertainty Quantification, *NREL Adaptive Computing Workshop*, NREL, June 14-16, 2022.

IP82. S. De, M. Reynolds, M. Hassanaly, R. King, and A. Doostan, Bi-fidelity Neural Network Operators for Uncertain Systems, *Engineering Mechanics Institute Conference*, Baltimore, MD, May 31-June 3, 2022.

IP81. J. Wentz and A. Doostan, Discovering governing equations using noisy measurements through projection-based denoising and second order cone programming, *Engineering Mechanics Institute Conference*, Baltimore, MD, May 31-June 3, 2022.

IP80. A. Doostan and J, Wentz, GenMod: A generative modeling approach for spectral representation of PDEs with random inputs, *Workshop on Approximation of high-dimensional parametric PDEs in forward UQ*, Vienna, Austria, May 9 - 13, 2022.

IP79. K. Doherty, A. Doostan, and S. Becker, Data Compression for Large PDE Simulations on Unstructured Meshes, *SIAM UQ22*, April 14, 2022 (virtual).

IP78. A. Doostan and J. Hokanson, Recovering Dynamical Systems from Noisy Measurements Using Constrained Optimization, *SIAM UQ22*, April 14, 2022 (virtual).

IP77. S. De, K. Maute, and A. Doostan, Use of Stochastic Gradient Descent for Topology Optimization under Reliability Constraints, *USNCCM15*, Chicago, IL, July 25-29, 2021.

IP76. A. Doostan, Data Compression Techniques for Large-scale PDE Simulations, University of Iowa, Department of Mathematics, April 27, 2021.

IP75. A. Doostan, Data Compression Techniques for Large-scale PDE Simulations, NREL, April 21, 2021.

IP74. A. Cortiella and A. Doostan, Denoising Methods for Data-Driven Recovery of Nonlinear Dynamical Systems, *SIAM CSE21*, March 1-5, 2021 (virtual).

IP73. S. De and A. Doostan, Multi-Fidelity Methods for Deep Neural Network Surrogates, *SIAM CSE21*, March 1-5, 2021 (virtual).

IP72. A. Doostan, Random Sampling Strategies for Sparse Polynomial Expansions, *SIAM Conference on Mathematics of Data Science*, July 30, 2020. (Zoom presentation)

IP71. A. Doostan, A. Cortiella, and P. Diaz, Improving Stability of Numerical Methods for Recovering Governing Equations from Data, *USNCCM15*, Austin, TX, July 30, 2019.

IP70. A. Doostan, Research 101, BOLD Center Summer Bridge Program, CU Boulder, August 1, 2019.

IP69. A. Doostan, Uncertainty Quantification of Complex Engineering Systems, Smead Spring Symposium, Avon, April 13, 2019.

IP68. S. De, A. Doostan, and Kurt Maute, Topology Optimization under Uncertainty (TOuU) using Stochastic Gradient Descent Approaches, Topology Optimization Roundtable, Albuquerque, New Mexico, March 11, 2019

IP67. A. Doostan, Uncertainty Quantification via a Multi-Fidelity Model Reduction Approach, Department of Applied and Computational Mathematics and Statistics (ACMS) Colloquium, March 8, 2019.

IP66. A. Doostan, Uncertainty Quantification of Complex Systems via Multi-fidelity Modeling, Structural Engineering, UCSD, March 4, 2019.

IP65. P. Diaz and A. Doostan, Improving Stability of Numerical Methods for Recovering Governing Equations from Noisy Data abstract, *SIAM CSE19*, Spokane, WA, February 25-March 1, 2019.

IP64. A. Doostan, S. De, J. Hampton, and K. Maute, Optimization under Uncertainty using Stochastic Gradients, *SIAM CSE19*, Spokane, WA, February 25-March 1, 2019.

IP63. A. Doostan, A Multi-Fidelity Low-Rank Approximation Technique for Uncertainty Quantification, *HCM Workshop: Analysis and Computation in High Dimensions*, University of Bonn, Germany, October 1-5, 2018.

IP62. A. Doostan, A Multi-Fidelity Low-Rank Approximation Technique for Uncertainty Quantification, *Digital Thread: Turbomachinery Design Workshop*, UTRC, August 20-21, 2018.

IP61. A. Doostan, Uncertainty Quantification Using Low-fidelity Data, WCCM 18, New York, July 22-27, 2018.

IP60. A. Doostan, Uncertainty Quantification via a Multi-Fidelity Model Reduction Approach, UCSD, Structural Engineering Department, May 23, 2018.

IP59. H. Fairbanks and A. Doostan, Linear Bayesian Inference via Multi-Fidelity Modeling, *SIAM UQ*, Garden Grove, CA, April 16-19, 2018.

IP58. F. Newberry, A. Doostan, and M. Farr, Polynomial Chaos Basis Reduction for Uncertainty Quantification – A Bi-fidelity Approach, *SIAM UQ*, Garden Grove, CA, April 16-19, 2018.

IP57. A. Dunton, L. Jofre, and A. Doostan, Matrix Decomposition Algorithms for Large-scale Data Compression, *SIAM UQ*, Garden Grove, CA, April 16-19, 2018.

IP56. P. Diaz, J. Hampton, and A. Doostan, Design of Optimal Experiments for Compressive Sampling of Polynomial Chaos Expansions, *SIAM UQ*, Garden Grove, CA, April 16-19, 2018.

IP55. G. Iaccarino, L. Jofre, G. Geraci, and A. Doostan, Uncertainty Quantification in Large-scale Multiphysics Applications using Exascale Approaches, *SIAM UQ*, Garden Grove, CA, April 16-19, 2018.

IP54. A. Doostan, Uncertainty Quantification via a Multi-Fidelity Model Reduction Approach, Duke University, Civil and Environmental Engineering Department colloquium, April 10, 2018.

IP53. A. Doostan, Uncertainty Quantification Using Low-fidelity Data, Computational Uncertainty Quantification Workshop Banff, Canada, October 9, 2017.

IP52. P. Diaz and A. Doostan, Design of Optimal Experiments for Compressive Sampling of Polynomial Chaos Expansions: Application to Uncertainty Quantification, *SIAM AN*, Pittsburg, PA, July 10-14, 2017.

IP51. J. Hampton, H. Fairbanks, and A. Doostan, A Bi-Fidelity, Low-Rank Approximation Technique for Uncertainty Quantification, *SIAM AN*, Pittsburg, PA, July 10-14, 2017.

IP50. A. Doostan, Uncertainty Quantification Using Low-fidelity Data, *Boulder Fluids Seminar*, Boulder, CO, March 14, 2017.

IP49. J. Hampton and A. Doostan, Basis and Sample Adaptive Polynomial Chaos Expansions, *SIAM CSE17*, Atlanta, GA, February 27-March 3, 2017.

IP48. M. Reynolds and A. Doostan, A New Sampling Method for Alternating Least-Squares Regression, *SIAM CSE17*, Atlanta, GA, February 27-March 3, 2017.

IP47. H. Fairbanks, J. Hampton and A. Doostan, A Bi-Fidelity, Low-Rank Approximation Technique for Uncertainty Quantification, *SIAM CSE17*, Atlanta, GA, February 27-March 3, 2017.

IP46. A. Doostan, Polynomial Chaos Expansions: A Compressive Sampling Approach, Applied Mathematics Graduate Seminar (Intro to Research), CU Boulder, Boulder, CO, February, 2017.

IP45. A. Doostan, Uncertainty Quantification Using Low-fidelity Data, Applied Mathematics Colloquia, University of Colorado, Boulder, November 4, 2016.

IP44. A. Doostan, Research 101, BOLD Center's GoldShirt Summer Bridge Program, CU Boulder, Boulder, CO, July 21, 2016.

IP43. A. Doostan and J. Hampton, Optimal Random Sampling in Sparse Polynomial Chaos Expansions, *Approximation Theory AT15*, San Antonio, TX, May 22 - 25, 2016.

IP42. H. Fairbanks, A. Doostan, and C. Ketelsen, A Multilevel Control Variate Method Based on Low-Rank Approximation, *SIAM UQ16*, Lausanne, Switzerland, April 5-8. 2016.

IP41. G. Geraci, A. Doostan and G. Iaccarino, Multilevel Monte Carlo for convective transport in inhomogeneous media, *SIAM UQ16*, Lausanne, Switzerland, April 5-8. 2016.

IP40. A. Doostan, J. Hampton, and J. Peng, Polynomial Chaos Expansion Via Gradient-Enhanced ℓ_1-Minimization, *SIAM UQ16*, Lausanne, Switzerland, April 5-8, 2016.

IP39. A. Doostan, J. Hampton, and J. Peng, Polynomial Chaos Expansion Via Gradient-Enhanced ℓ_1-Minimization, *SIAM PD15*, Scottsdale, AZ, December 7-10, 2015.

IP38. A. Doostan, Research 101, BOLD Center's Power Hour Seminar, CU Boulder, Boulder, CO, November 04, 2015.

IP37. A. Doostan, A Spectral Framework For Uncertainty Quantification: Sparse Representations, Sampling Methods, and Approximation Techniques, Stanford, Institute for Computational Mathematics and Engineering (ICME), September 8, 2015.

IP36. A. Doostan, Research 101, BOLD Center's GoldShirt Summer Bridge Program, CU Boulder, Boulder, CO, July 20, 2015.

IP35. A. Doostan, Polynomial Chaos Expansions: A Compressive Sampling Approach, Applied Mathematics Graduate Seminar (Intro to Research), CU Boulder, Boulder, CO, April 22, 2015.

IP34. A. Doostan, Becoming a Professor, Aerospace Engineering Sciences Department Graduate Student Seminar, Boulder, CO, April 2015.

IP33. J. Hampton and A. Doostan, Coherence Motivated Sampling of Polynomial Chaos Expansions, *SIAM CSE15*, Salt Lake City, UT, March 17, 2015.

IP32. A. Doostan, A Compressive Sampling Framework For Sparse Polynomial Chaos Expansions, MIT, AeroAstro, Boston, MA, October 1, 2014.

IP31. A. Doostan, Compressive Sampling of Sparse Polynomial Chaos Expansions: Convergence Analysis and Sampling Strategies, *ICERM's Approximation, Integration, and Optimization Workshop*, Brown University, Providence, RI, September 30, 2014.

IP30. A. Doostan, Uncertainty Quantification Using Polynomial Chaos Expansions: A Compressive Sampling Approach, Computational Mathematics Seminar, University of Colorado, Boulder, CO, September 16, 2014.

IP29. A. Doostan, Spectral Methods for Uncertainty Quantification, *Boulder Fluids Seminar*, Boulder, CO, July 29, 2014.

IP28. J. Hampton and A. Doostan, Random sampling strategies for high-dimensional polynomial chaos expansions, *International Conference on Spectral and High Order Methods (ICOSAHOM)*, Salt Lake City, UT, June 27, 2014.

IP27. D. Biagioni, A. Doostan, and G. Beylkin, A Randomized Tensor Algorithm for the Construction of Green's Functions for Elliptic sPDE's, *SIAM UQ14*, Savannah, GA, April, 2014.

IP26. J. Hampton and A. Doostan, Coherence Motivated Monte Carlo Sampling of Sparse Polynomial Chaos Bases, *SIAM UQ14*, Savannah, GA, April, 2014.

IP25. A. Doostan, Stochastic PDEs, Compressive Sampling of Polynomial Chaos Expansions: Convergence Analysis and Sampling Strategies, DOE Applied Mathematics Program Meeting, Albuquerque, NM, August 6-8, 2013.

IP24. A. Doostan, J. Hampton, J. Peng, A compressive sampling approach to the solution of PDEs with high-dimensional random inputs, *NuMUQ*, Bonn, Germany, May 13, 2013.

IP23. A. Doostan, Solution of PDEs with Uncertain Inputs: A Stochastic Galerkin Approach, Applied Mathematics Graduate Seminar (Intro to Research), CU Boulder, Boulder, CO, April 24, 2013.

IP22. A. Doostan, M. Hadigol, H. Matthies, and R. Niekamp, A Model Reduction Approach for Partitioned Treatment of Uncertainty in Coupled Systems, *SIAM CSE13*, Boston, MA, February 26, 2013.

IP21. A. Doostan, Stochastic model reduction using low-rank separated representations, *ICERM's Uncertainty Quantification Workshop*, Brown University, Providence, RI, October 12, 2012.

IP20. A. Doostan, Spectral methods for uncertainty quantification: numerical challenges and sparse approximations, Colorado Schools of Mines, Applied Mathematics & Statistics Colloquia, April 13, 2012.

IP19. A. Doostan, Spectral methods for uncertainty quantification: numerical challenges and sparse approximations, Duke University, MEMS Department, March 30, 2012.

IP18. A. Doostan, Sparse approximation of stochastic PDEs using ℓ_1-minimization, Technische Universität Braunschweig, Germany, December 21, 2011.

IP17. A. Doostan, A compressive sampling approach to uncertainty propagation, Department of Applied Mathematics, Brown University, Providence, RI, November 18, 2011.

IP16. A. Doostan, A compressive sampling approach to uncertainty propagation, SAMSI, Raleigh, NC, November 10, 2011.

IP15. A. Doostan, A compressive sampling approach to uncertainty propagation, NIST, Boulder, CO, August 03, 2011.

IP14. A. Doostan, A sparse approximation for uncertainty propagation, Stochastic Multiscale Methods Workshop, Banff, Canada, March 29, 2011.

IP13. A. Doostan, A sparse approximation of partial differential equations with random inputs, Department of Statistics, Colorado State University, Fort Collins, CO, February 21, 2011.

IP12. A. Doostan, Uncertainty Quantification: Towards Predictive Computational Modeling, Applied Mathematics and Statistics Department Colloquia, University of Colorado, Boulder, CO, October 1, 2010.

IP11. A. Doostan, A sparse approximation of partial differential equations with random inputs, Mathematical and Computer Sciences Department, Colorado School of Mines, Golden, CO, August 17, 2010.

IP10. A. Doostan, Solution of high-dimensional uncertain systems using separated tensor decompositions, *SIAM Annual Meeting 2010*, Pittsburgh, PA, July 12-16, 2010.

IP9. A. Doostan, Uncertainty representation and propagation in predictive modeling, Aerospace Engineering Sciences Department, CU Boulder, CO, March 09, 2009.

IP8. A. Doostan, Uncertainty representation and propagation in predictive modeling, iCME, Stanford, CA, November 04, 2008.

IP7. A. Doostan and G. Iaccarino, Low-rank approximation of high-dimensional stochastic problems, Uncertainty Analysis in Complex Multi-Physics Applications Workshop, Stanford, CA, July 26, 2008.

IP6. A. Doostan and G. Iaccarino, A new algorithm for efficient uncertainty propagation in computational science, Thermal and Fluid Sciences Affiliates and Sponsors Conference, Stanford, CA, February 08, 2008.

IP5. A. Doostan, Verification and Validation of Predictive Models: A Polynomial Chaos Approach, University of Maryland, College Park, MD, April 23, 2007.

IP4. A. Doostan, Verification and Validation of Predictive Models: A Polynomial Chaos Approach, Southern Methodist University, Dallas, TX, April 10, 2007.

IP3. A. Doostan, On Essential Ingredients for Reliable Verification and Validation of Predictive Models, Massachusetts Institute of Technology, Cambridge, MA, October 24, 2006.

IP2. R. Ghanem and A. Doostan, The Structural Dynamics Validation Challenge Problem: An approximation-theoretic approach, *Validation Challenge Workshop*, Sandia National Laboratories, Albuquerque, NM, May 21-23, 2006.

IP1. R. Ghanem, J. Red-Horse, C. Pettit, and A. Doostan, Uncertainty quantification and management in mechanics, *Foundations '04 V&V Workshop*, Tempe, Arizona, October 13-15, 2004.

CONFERENCE
PRESENTA-
TIONS

CP73. N. Cheng, A. Doostan, S. Becker, Surrogate-based Line Search for Stochastic Subspace Descent. Model Reduction and Surrogate Modeling (MORe2024), La Jolla, CA, Sep 9 - 13, 2024.

CP72. A. Doostan, G. Norman, J. Wentz, and J. Hokanson, Simultaneous Denoising and Recovery of Dynamical System Equations from Noisy Measurements, ECCOMAS 2024, Lisbon, Portugal, June 6, 2024.

CP71. C. Rowan, A. Doostan, K. Maute, Deep Ritz Method for Phase Field Model of Fracture, EMI 2024, Chicago, IL, May 28-31, 2024.

CP70. A. C. Schmid, A. Doostan, F. Pourahmadian, Data-driven discovery of governing equations and mechanical properties from experimental ultrasonic data with quantified uncertainty EMI 2024, Chicago, IL, May 28-31, 2024.

CP69. W. Zhan, E. K. Sutton, T.-W. Fang, and A. Doostan, Uncertainty quantification and sensitivity analysis of the Ionosphere-Thermosphere conditions for the equatorial plasma bubbles. Triennial Earth-Sun Summit 2024, Dallas, TX, April 7-12, 2024.

CP68. J.M. Cardenas, A. Doostan, An adaptive sampling strategy to approximate partial differential equations from noisy data. WONAPDE 2024, Concepcion, Chile, January 14-19, 2024.

CP67. W. Zhan, A. Doostan, E. K. Sutton, T.-W. Fang. Quantifying uncertainties in the quiet-time ionosphere-thermosphere using WAM-IPE. *AGU 2023 Fall Meeting*, San Francisco, CA December 11-15, 2023.

CP66. G. Norman, A. Doostan, On a Constrained Formulation of Physics-Informed Neural Network Models, *17th U. S. National Congress on Computational Mechanics (USNCCM17) 2023*, Albuquerque, NM, July 23-27, 2023.

CP65. K. Doherty, C. Simpson, S. Becker, and A. Doostan, QuadConv: Quadrature-Based Convolutions with Applications to Non-Uniform Data Compression, *17th U. S. National Congress on Computational Mechanics (USNCCM17) 2023*, Albuquerque, NM, July 23-27, 2023.

CP64. A. Cortiella, T. Fan, E. Darve, and A. Doostan, Generative Modeling and Clustering of Reacting Flows via GM-VAE, *17th U. S. National Congress on Computational Mechanics (USNCCM17) 2023*, Albuquerque, NM, July 23-27, 2023.

CP63. A. Doostan and J. Wenetz, Derivative-based SINDy (DSINDy): Addressing the challenge of discovering governing equations from noisy data, *17th U. S. National Congress on Computational Mechanics (USNCCM17) 2023*, Albuquerque, NM, July 23-27, 2023.

CP62. W. Zhan, E. K. Sutton, A. Doostan, T.-W. Fang, , and C.Y. Huang. Examining the effects of vertical shears of zonal plasma and neutral flows on the instability of the postsunset equatorial ionosphere. *CEDAR Workshop 2023*, San Diego, CA June 26-30, 2023.

CP61. W. Zhan, E. K. Sutton, A. Doostan, and T.-W. Fang, Uncertainty quantification and its application to ionosphere-thermosphere models. *CEDAR Workshop 2023*, San Diego, CA June 26-30, 2023.

CP60. W. Zhan, E. K. Sutton, A. Doostan, and T.-W. Fang, Uncertainty Quantification of the Ionosphere-Thermosphere with WAM-IPE, *CEDAR Workshop 2023*, San Diego, CA June 26-30, 2023.

CP59. A. C. Schmid, F. Pourahmadian, and A. Doostan. Data-driven Discovery of Equations Governing Ultrasonic Wave Motion. *17th U. S. National Congress on Computational Mechanics (USNCCM17) 2023*, Albuquerque, NM, July 23-27, 2023.

CP58. K. Doherty, C. Simpson, S. Becker and A. Doostan. QuadConv: Quadrature Convolutions with Application to Non-Uniform Data Compression. CoDA (2023) Santa Fe, New Mexico March 7 - March 9, 2023. (Won a Poster Award)

CP57. K. Doherty, C. Simpson, S. Becker and A. Doostan. QuadConv: Quadrature Convolutions with Application to Non-Uniform Data Compression. SIAM CSE (2023) Amsterdam, Netherlands February 26 - March 3, 2023.

CP56. A. Cortiella, HS. Choi, J. Hokanson, and A. Doostan, Nonlinear Strategies for Recovering Governing Equations from Noisy Data, *USNCCM15*, Chicago, IL, July 25-29, 2021.

CP55. S. De, K. Maute, and A. Doostan, Microscale Uncertainty in Macroscale Topology Optimization, *14th World Congress of Structural and Multidisciplinary Optimization (WCSMO-14)*, Boulder, CO, June 13-18, 2021.

CP54. K. Maute, S. De, and A. Doostan, Shape and Material Optimization of Problems with Dynamically Evolving Interfaces, *14th World Congress of Structural and Multidisciplinary Optimization (WCSMO-14)*, Boulder, CO, USA, 2021.

CP53. S. De, K. Maute, and A. Doostan, Topology Optimization in the Presence of Microscale Uncertainty, *ASCE Engineering Mechanics Institute Conference*, Columbia University, New York, USA, postponed to 2021.

CP52. A. Doostan, Uncertainty Quantification via Multi-Fidelity Model Reduction, *Coupled Problems*, Chia Laguna, Italy, June 13-16, 2021.

CP51. H. Pacella, A. Dunton, A. Doostan, G. Iaccarino, and A. Doostans, *In situ* data compression for large-scale computational fluid dynamics simulations via interpolative decomposition methods, *72nd Annual Meeting of the APS Division of Fluid Dynamics*, Seattle, WA, November 23-26, 2019.

CP50. A Prakash, E Peters, R Balin, K Jansen, A Doostan, J Evans, An S-frame Discrepancy Correction for Data-Driven Reynolds Stress Closure, *72nd Annual Meeting of the APS Division of Fluid Dynamics*, Seattle, WA, November 23-26, 2019.

CP49. S. De, A. Doostan, and K. Maute, Optimization under uncertainty using stochastic gradients, *USNCCM15*, Austin, TX, July 30, 2019.

CP48. H. Fairbanks and A. Doostan, A Low-rank, Bi-fidelity Approximation for Linear Bayesian Inference, *SIAM CSE19*, Spokane, WA, February 25-March 1, 2019.

CP47. A. Dunton, L. Jofre, G. Iaccarino, and A. Doostan, Pass-efficient Matrix Algorithms for Lossy Data Compression, *SIAM CSE19*, Spokane, WA, February 25-March 1, 2019.

CP46. R. King, J. Annoni, A. Doostan, and M. Sprague, Enabling predictive reduced order modeling of high-fidelity wind plant simulations with in-situ modal decomposition and basis interpolation, *71st Annual Meeting of the APS Division of Fluid Dynamics*, Atlanta, GA, November 18-20, 2018.

CP45. A. Doostan, J. Hampton, H. Fairbanks, and A. Narayan, Uncertainty Quantification via a Bi-fidelity Low-rank Approximation Technique, *SIAM UQ*, Garden Grove, CA, April 16-19, 2018.

CP44. F. Newberry, M. Farr, and A. Doostan, Basis Reduction for Uncertainty Quantification-A Bi-fidelity Approach, *70st Annual Meeting of the APS Division of Fluid Dynamics*, Denver, CO, November 19-21, 2017.

CP43. A. Doostan and P. Diaz, Experimental Design In Sparse Polynomial Chaos Expansions, *SIAM CSE17*, Atlanta, GA, February 27-March 3, 2017.

CP42. J. Hampton and A. Doostan, Sample-Efficient, Basis-Adaptive Polynomial Chaos Approximation, *SIAM UQ16*, Lausanne, Switzerland, April 5-8. 2016.

CP41. M. Reynolds, A. Doostan, and G. Beylkin, Solution of Stochastic PDEs Via Low-Rank Separated Representation: A Randomized Alternating Least Squares Approach, *SIAM UQ16*, Lausanne, Switzerland, April 5-8. 2016.

CP40. M. Hadigol, A. Doostan, and K. Maute, Uncertainty Quantification of Lithium-Ion Batteries, *USNCCM13*, SanDiego, CA, July 26-30, 2015.

CP39. A. Doostan and J. Hampton, Random sampling strategies for sparse polynomial chaos expansions, *USNCCM13*, SanDiego, CA, July 26-30, 2015.

CP38. J. Peng, J. Hampton, and A. Doostan, Sparse polynomial chaos approximation with gradient-enhanced l1-Minimization, *USNCCM13*, SanDiego, CA, July 26-30, 2015.

CP37. H. Fairbanks, A. Doostan, and C. Ketelsen, High Dimensional Uncertainty Quantification via Multilevel Monte Carlo, 17th Copper Mountain Conference on Multigrid Methods, Copper Mountain, CO, March 27, 2015.

CP36. D. Schiavazzi, A. Doostan, and G. Iaccarino, A Sparse Multiresolution Regression Framework for Uncertainty Quantification, *SIAM CSE15*, Salt Lake City, UT, March 17, 2015.

CP35. A. Doostan and J. Hampton, Least-squares Polynomial Chaos Regression: Convergence and Sampling Strategies, *SIAM CSE15*, Salt Lake City, UT, March 18, 2015.

CP34. A. Doostan and J. Hampton, Optimal Sampling of Polynomial Chaos Expansions, *SIAM AN14*, Chicago, IL, July 8, 2014.

CP33. H. Matthies, R. Niekamp, M. Krosche, and A. Doostan, Coupled stochastic problems, 11*th World Conference on Computational Mechanics (WCCM XI)*, Barcelona, Spain, July 20-25, 2014.

CP32. M. Hadigol and A. Doostan, Uncertainty Quantification of Coupled Electrochemical Equations for the Simulation of Lithium-ion Batteries, *SIAM UQ14*, Savannah, Georgia, April, 2014.

CP31. J. Jagalur-Mohan, J. Li, O. Sahni, A. Doostan, and A. Oberai, Variational multiscale analysis and the fine-scale Greens functions for simple stochastic partial differential equations, *SIAM UQ14*, Savannah, Georgia, April, 2014.

CP30. P. Pettersson, A. Doostan, and J. Nordström, Incompressible Navier-Stokes Equations with Stochastic Viscosity, *SIAM UQ14*, Savannah, Georgia, April, 2014.

CP29. M. Balducci, B. Jones, and A. Doostan,, High-Dimension Orbit Uncertainty Propagation Using Separated Representations abstract, *SIAM UQ14*, Savannah, Georgia, April, 2014.

CP28. J. Peng, D. Biagioni, A. Doostan, and D. Xiu, Design of Polynomial Chaos Basis for Sparse Approximation of Stochastic Functions, *SIAM UQ14*, Savannah, Georgia, April, 2014.

CP27. M. Hadigol, A. Doostan, H. Matthies, and R. Niekamp, A model reduction approach for partitioned treatment of uncertainty in coupled domain problems, *USNCCM12*, Raleigh, North Carolina, July 22-25, 2013.

CP26. J. Jagalur-Mohan, A. Oberai, O. Sahni, and A. Doostan, Variational multiscale analysis and the fine-scale Greens functions for simple stochastic partial differential equations, *USNCCM12*, Raleigh, North Carolina, July 22-25, 2013.

CP25. R. Niekamp, M. Krosche, A. Doostan, and H. Matthies, Iterative methods for coupled stochastic field problems, *Coupled Problems 2013*, Ibiza, Spain, June 17-19, 2013.

CP24. H. Matthies, R. Niekamp, M. Krosche, and A. Doostan, Coupled stochastic field problems, *Marine 2013*, Hamburg, Germany, May 29, 2013.

CP23. J. Hampton and A. Doostan, Weighted compressive sampling methods for sparse polynomial chaos expansions, *SIAM CSE13*, Boston, February 28, 2013.

CP22. A. Doostan, A compressive sampling approach for the solution of high-dimensional stochastic PDEs, *SIAM UQ12*, Raleigh, NC, April 2-5, 2012.

CP21. C. Lang, K. Maute, and A. Doostan, Enrichment strategies in the extended stochastic FEM for heat transfer analysis with uncertain material interfaces, *USNCCM11*, Minneapolis, MN, July 24-28, 2011.

CP20. A. Doostan and A. Validi, A non-intrusive low-rank separated approximation of high-dimensional uncertain systems, *ICIAM 2011*, Vancouver, Canada July 18- 22, 2011.

CP19. A. Doostan and A. Validi, Non-intrusive propagation of uncertainty based on low-rank separated approximations, 20th *AIAA CFD Conference*, Honolulu, HI, June 27-30, 2011.

CP18. A. Doostan and H. Owhadi, Sparse Approximation of SPDEs, *SIAM CSE11*, Reno, NV, February 28- March 03, 2011.

CP17. C. Lang, A. Doostan and K. Maute, Extended Spectral Stochastic FEM for Heat Transfer with Uncertain Material Interfaces, *EMI 2010*, Los Angeles, CA, August 8-11, 2010.

CP16. A. Doostan and H. Owhadi, A sparse approximation of partial differential equations with random inputs, *SIAM Annual Meeting 2010*, Pittsburgh, PA, July 12-16, 2010.

CP15. A. Doostan and G. Iaccarino, Curse of dimensionality and low-rank approximations in computational stochastic mechanics, *USNCCM10*, Columbus, OH, July 16-19, 2009.

CP14. A. Doostan and G. Iaccarino, Efficient low-rank separated approximation of a class of high-dimensional uncertain systems, *SIAM Conference on Computational Science and Engineering 2009*, Miami, FL, March 2-6, 2009.

CP13. A. Doostan and G. Iaccarino, A least-squares approximation of partial differential equations with high-dimensional random input data, *SIAM Annual Meeting 2008*, San Diego, CA, July 7-11, 2008.

CP12. A. Doostan and G. Iaccarino, A least-squares approximation of high-dimensional uncertain systems, *EM08 Inaugural International Conference of the Engineering Mechanics Institute*, Minneapolis, MN, May 18-21, 2008.

CP11. R. Ghanem, J. Red-Horse, and A. Doostan, A probabilistic approach to validation problem, *EM08 Inaugural International Conference of the Engineering Mechanics Institute*, Minneapolis, Minnesota, May 18-21, 2008.

CP10. T. Chanstrasmi, A. Doostan, and G. Iaccarino, Efficient analysis of stochastic systems in the presence of discontinuity, *APS- 60th Annual Meeting of the Division of Fluid Dynamics*, Salt Lake City, Utah, November 18-20, 2007.

CP9. P. Constantine, A. Doostan, G. Iaccarino, and Q. Wang, High order stochastic collocation for turbulent flow and heat transfer around a cylinder, *USNCCM9*, San Francisco, CA, July 23-26, 2007.

CP8. T. Chanstrasmi, A. Doostan, and G. Iaccarino, Efficient analysis of stochastic systems in the presence of discontinuity, *USNCCM9*, San Francisco, CA, July 23-26, 2007.

CP7. R. Ghanem and A. Doostan, Model reduction and adaptation in stochastic Galerkin projections, *SIAM Conference on Computational Science and Engineering 2007*, Costa Mesa, CA, February 19-23, 2007.

CP6. A. Doostan, R. Ghanem, and J. Red-Horse, On the representation of epistemic and aleatory uncertainty for validation of predictive models, 7th *World Congress on Computational Mechanics*, Los Angeles, CA, July 16-22, 2006.

CP5. R. Ghanem and A. Doostan, Model reductions in stochastic Galerkin schemes, 7th *World Congress on Computational Mechanics*, Los Angeles, CA, July 16-22, 2006 (to be presented).

CP4. R. Ghanem, J. Red-Horse, and A. Doostan, Error budget for the validation of physics-based predictive models, *2006 Joint Research Conference on Statistics in Quality, Industry, and Technology*, Knoxville, TN, June 7-9, 2006.

CP3. R. Ghanem and A. Doostan, Error budgets for validation of probabilistic predictive models, *USNCCM8*, Austin, Texas, July 24-28, 2005.

CP2. A. Doostan and R. Ghanem, An a-posteriori error analysis in stochastic finite element method, *SIAM Conference on Computational Science and Engineering*, Orlando, FL, February 12-15, 2005.

CP1. R. Ghanem and A. Doostan, A-posteriori error estimates for the spectral stochastic FEM based on hierarchical bases, *ASCE 9th Joint Specialty Conference on Probabilistic Mechanics&Structural Reliability, PMC2004*, Albuquerque, NM, July 26-28, 2004.

SERVICE ACTIVITIES

◇ **CU Boulder Campus Committees/Service**.

· Research & Innovation Office (RIO) Advisory Board member, 2018 - 2021.

· Reviewer for a campus-level external award nomination, Fall 2017 and Fall 2018.

· Review panel for CU Boulder's Innovative Seed Grant, 2010, 2011 (Also reported under " Reviews/Panels").

◇ **CU Boulder Engineering College Committees/Service**.

· College-wide Engineering Proposal Review Committee (EPRC), Spring 2020.

· Faculty mentor lead for Redshirt in Engineering Consortium (BOLD center), Fall 2016 - present.

· AES Liaisons for URM Graduate Student Recruiting, Fall 2018 - present.

· Engineering college teaching award committee, Fall 2017 and Fall 2018.

· Curriculum flexibility committee, Spring 2017.

· Mechanical engineering faculty search committee, Fall 2014, Spring 2015.

· College undergraduate scholarship committee, 2011, 2013 - present.

· Bold Center's Goldshirt recruitment program, 2012 - present.

· College Ph.D. dissertation award selection, 2012.

· Applied Mathematics Department course evaluation, 2010.

· Has invited and hosted 13 researcher for seminars attended by AES, ME, Civil, and APPM faculty members and students.

◇ **CU Boulder AES Department Committees/Service**.

· Smead Program Steering Committee, 2018 - 2023.

· AES Executive Committee, 2018 - 2021.

· Chair of a tenure-track faculty promotion, Fall 2018.

- Faculty mentor for an AES instructor, 2018 - present.
- Faculty search committee, 2015 and 2016.
- Distinguished lecture and visitor committee 2013 - 2018.
- Graduate committee, Fall 2011, Spring 2012, Fall 2013, 2014, Spring 2015, Spring 2017.
- Undergraduate committee, Fall 2010, Spring 2010, Spring 2011, Fall 2012, Spring 2013.
- Control systems faculty search committee, Fall 2012, Spring 2013.
- Ph.D. dissertation award selection, 2012.

◇ **Journal Editorial Boards**.

- International Journal for Uncertainty Quantification (IJUQ), August 2020 - present.
- Journal of Computational Physics (JCP), October 2024 - present.

◇ **Proposal Reviews/Panels**.

- DOE, Advanced Scientific Computing Research program (panel and mail-in)
- NSF DMS (panel)
- NSF CBET (mail-in)
- NSF CMMI (panel and mail-in)
- Netherlands Organization for Scientific Research (NWO) (mail-in)
- CU Boulder Seed Grant (panel)

◇ **Conferences/Workshops Organized**.

- Second USACM Thematic Conference on Uncertainty Quantification for Machine Learning Integrated Physics Modeling (UQ-MLIP 2024), Crystal City, Arlington, VA, August 12-14, 2024.
- Symposium organizer of muni-symposium on *Advances in Data-Driven Model Development*, 17th U. S. National Congress on Computational Mechanics (USNCCM17) 2023, Albuquerque, NM, July 23-27, 2023.
- International Papers Committee Member, *15th World Congress of Structural and Multidisciplinary Optimization (WCSMO-14)*, Cork, Ireland, 5-9 June 2023.
- One of four organizers of *Workshop on Establishing Benchmarks for Data-Driven Modeling of Physical Systems*, University of Southern California, Los Angele, April 6-7, 2023.
- Local Organizing Committee Member, *14th World Congress of Structural and Multidisciplinary Optimization (WCSMO-14)*, Boulder, CO, June 13-18, 2021 (virtual).
- Mini-symposium on *Uncertainty quantification for coupled multi-physics, multi-scale and multi-fidelity modeling*, Coupled Problems, Chia Laguna, Italy, June 13-16, 2021 (jointly with Douglas Allaire, John D. Jakeman, and Lorenzo Tamellini)
- Mini-symposium on *Recent Advances in Data-driven Scientific Model Development and Recovery*, USNCCM15, Chicago, IL, July 25-29, 2021. (jointly with Ryan King)
- Mini-symposium on *Robust design and reliability-based design optimization*, 14th World Congress of Structural and Multidisciplinary Optimization, June, 2021. (jointly with Subhayan De and Kurt Maute)
- Mini-symposium on *Advances in Design Optimization under Uncertainty*, USNCCM15, Austin, TX, July 28 - August 1, 2019. (jointly with Subhayan De and Kurt Maute)
- Mini-symposium on *Surrogate Modeling and Data Compression for Exascale Applications*, SIAM CSE19, Spokane, WA, February 25-March 1, 2019. (jointly with Matthew J. Reynolds and Ryan King)

· Mini-symposium on *Multifidelity and multilevel simulation and approximation in the computational sciences*, ICOSAHOM, London, UK, July 9-13, 2018. (jointly with Akil Narayan)

· Mini-symposium on *Advances in Multi-level and Multi-fidelity Methods for Uncertainty Quantification*, SIAM UQ18, Garden Grove, CA, April 16-19, 2018. (jointly with Akil Narayan)

· Workshop on Advances in Numerical Methods for Simulation, Optimization, and Uncertainty Quantification of Coupled Physics Problems, CU Boulder, April 23-24, 2018. (jointly with Kurt Maute)

· Mini-symposium on *Compressive Sampling Methods in High-Dimensional Stochastic and Parametric Approximations*, SIAM CSE17, Atlanta, GA, March 28-April 3, 2017. (jointly with Dongbin Xiu)

· Mini-symposium on *Bayesian Inversion and Low-rank Approximation*, SIAM UQ16, Lausanne, Switzerland, April 5-8, 2016. (jointly with Hermann Matthies, among others)

· Mini-symposium on *Sparse Techniques for High-dimensional UQ Problems and Applications*, SIAM UQ16, Lausanne, Switzerland, April 5-8, 2016. (jointly with Bruno Sudret and Khachik Sargsyan)

· Mini-symposium on *Uncertainty Quantification Methods for Complex Mechanics Models*, USNCCM13, San Diego, CA, July 26-30, 2015. (jointly with Paul Constantine)

· Mini-symposium on *Uncertainty Quantification and Inverse Problems*, PANACM15, Buenos Aires, Argentina, April 27-29, 2015. (jointly with Hermann Matthies, among others)

· Mini-symposium on *Numerical Methods for High-Dimensional Stochastic and Parametric Problems*, SIAM CSE15, Salt Lake City UT, March 14-18, 2015. (jointly with Dongbin Xiu)

· Mini-symposium on *Linear Algebra Aspects and Scalable Methods for Stochastic/ parameterized Partial Differential Equations*, SIAM AN14, Chicago IL, July 7-11, 2014. (jointly with Paul Constantine)

· Mini-symposium on *Applications of Uncertainty Quantification in Astrodynamics*, SIAM UQ14, Savanna GA, March 31-April 3, 2014. (jointly with Brandon Jones)

· Mini-symposium on *Numerical Methods for Uncertainty Quantification of Coupled Problems*, SIAM UQ14, Savanna GA, March 31-April 3, 2014. (jointly with Dongbin Xiu)

· Mini-symposium on *Numerical Methods for High-Dimensional Uncertainty Quantification*, SIAM CSE13, Boston MA, February 25-March 1, 2013. (jointly with Dongbin Xiu)

· Mini-symposium on *Advances in Numerical Methods for High Dimensional Stochastic and Parametric Models in Uncertainty Quantification*, WCCM10, Sao Paulo, Brazil, July 8-13 , 2012. (jointly with Anthony Nouy, Olivier LeMaitre, and Hermann Matthies)

· Mini-symposium on *Numerical Methods for High-Dimensional Uncertainty Quantification*, SIAM UQ12, Raleigh, NC, April 2-5, 2012. (jointly with Dongbin Xiu)

· Mini-symposium on *Numerical Methods for Stochastic Computation and Uncertainty Quantification*, SIAM CSE11, Reno NV, February 28-March 4, 2011. (jointly with Dongbin Xiu and Youssef Marzouk)

· Session chair, Engineering Mechanics Conference (EMI2010), Los Angeles, CA, August 8-11, 2010.

· Workshop on *Uncertainty Analysis in Complex, Multi-Physics Applications*, July 25-26, 2008 Stanford University, Stanford CA (jointly with Gianluca. Iaccarino and George. Papanicolaou)

⋄ **Journal Reviews**.

· Proceedings of the National Academy of Sciences (PNAS)
· ESAIM: Mathematical Modelling and Numerical Analysis
· Structural and Multidisciplinary Optimization (SMO)
· SIAM Journal On Uncertainty Quantification (JUQ)
· SIAM Journal On Multiscale Modeling and Simulation (MMS)
· Foundations of Computational Mathematics (JFoCM)
· SIAM Journal On Scientific Computing (SISC)
· Journal of Computational Physics (JCP)
· Journal of Engineering Mechanics
· International Journal for Uncertainty Quantification (IJUQ)
· Journal of Physics of Fluids (PoF)
· Probabilistic Engineering Mechanics (PEM)
· Computers and Structures (CAS)
· Computer Methods in Applied Mechanics and Engineering (CMAME)
· Journal of Aerospace Information Systems
· Journal of Sound and Vibration (JSV)
· International Journal for Numerical Methods in Engineering (IJNME)
· International Journal for Numerical Methods in Fluids (IJNMF)
· Computational Mechanics
· ASME Journal of Vibration and Acoustics
· ASME Journal of Computational and Nonlinear Dynamics
· Journal of Computational Dynamics (JCD)

⋄ **Other Services**.

· Technical committee of UNCECOMP 2023 conference
· Judge for 2023 Melosh Competition at Duke University

⋄ **Society Memberships**.

· Society of Industrial and Applied Mathematics (SIAM)
· American Institute of Aeronautics and Astronautics (AIAA)

SKILLS

⋄ Python, Fortran, C++.

⋄ Linux/Unix, MS Windows.

⋄ LATEX, MATLAB, ANSYS, DAKOTA.