

Dr. Johann Guilleminot

Assistant Professor

Department of Civil and Environmental Engineering (Primary)

Department of Mechanical Engineering and Materials Science (Secondary)

Information Initiative at Duke (iiD)

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Professional Address

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Contact: johann.guilleminot@duke.eduWebpage: <https://guilleminot.pratt.duke.edu/>**Research Interests**

- Stochastic modeling and computational mechanics.
- Stochastic boundary value problems, random fields, and uncertainty propagation.
- Statistical inverse problems, data assimilation, and model validation.
- Uncertainty quantification in science and engineering.
- Mechanics of heterogeneous materials, multiscale and multiphysics modeling of complex systems.
- Molecular dynamics simulations and atomistic-to-continuum coupling.

Education

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| 2014 | Habilitation à Diriger des Recherches (highest academic degree in France), Mechanics, Université Paris-Est, France.
<u>Topic:</u> Stochastic Modeling in Multiscale Mechanics of Heterogeneous Materials.
<u>External committee:</u> S. Forest (CNRS/Mines ParisTech), R. Ghanem (University of Southern California), O. Le Maître (CNRS/Ecole Polytechnique), A. Nouy (Ecole Centrale Nantes), D. Talay (INRIA Sophia Antipolis), K. Sab (IFSTTAR/ENPC). |
| 2008 | Ph.D. , Mechanics, University of Lille 1 - Science and Technology, France.
<u>Dissertation title:</u> Stochastic Modeling of Random Media at Mesoscale: Application to a Long-Fiber Reinforced Polymer.
<u>Advisers:</u> Prof. D. Kondo (Université Pierre et Marie Curie, France), Prof. C. Binétruy (Ecole Centrale Nantes, France). |
| 2005 | M.S. , Theoretical Mechanics, University of Lille 1 - Science and Technology, France. |
| 2005 | Diploma of Engineering , Mechanical Engineering and Materials Science, Institut Mines Télécom Lille, France. |

Professional Experience

Current Position

07/2017-Present Assistant professor in the Department of Civil and Environmental Engineering, with secondary appointment in the Department of Mechanical Engineering and Materials Science, Duke University.

Former Positions

09/2009-06/2017 Maître de Conférences, Multiscale Modeling and Simulation Laboratory (MSME UMR 8208 CNRS), Université Paris-Est Marne-la-Vallée, France.

05/2009-08/2009 Postdoctoral fellow, Multiscale Modeling and Simulation Laboratory (MSME UMR 8208 CNRS), Université Paris-Est Marne-la-Vallée, France.

10/2008-04/2009 Postdoctoral fellow, Laboratoire de Mécanique de Lille (LML UMR 8107 CNRS), University of Lille 1 - Science and Technology, France.

Visiting Professor Appointments

07/2016-06/2017 Visiting assistant professor, Department of Civil and Environmental Engineering, Duke University.

01/2010-09/2010 Visiting scholar, Department of Civil and Environmental Engineering and Department of Aerospace and Mechanical Engineering, University of Southern California.

Honors and Awards

2020 Elected Member-At-Large of the USACM Technical Thrust Area (TTA) committee on Uncertainty Quantification and Probabilistic Modeling.

2020 Faculty Early Career Development Program (CAREER), 2020-2025, awarded by the National Science Foundation (NSF, ENG/CMMI/MoMS), USA.

2018 Outstanding Reviewer, International Journal of Solids and Structures.

2017 Outstanding Reviewer, Computer Methods in Applied Mechanics and Engineering.

2014 Research and Doctoral Supervision Award, awarded upon the recommendation of a national committee of peers, France.

2012 Early Career Award (funding rate within the program: 16.5%), awarded by the French National Research Agency (ANR), France.

2007 SAMPE France Student Award (best PhD project), awarded by the Society for the Advancement of Material and Process Engineering (SAMPE), France.

2005 SF2M Prize (best MS thesis), awarded by the French Metallurgy & Materials Society, France.

2005 Scholarship for academic excellence, awarded by University of Lille 1 - Science and Technology, France.

Honors and Awards Received by Supervised Students

1. Shanshan Chu, Senol Utku Award (with High Distinction, departmental award), Department of Civil and Environmental Engineering, Duke University, 2020.

2. Brian Staber, ECCOMAS Best PhD Award 2018: Best PhD Thesis in Computational Mechanics in Europe (international award), European Community on Computational Methods in Applied Sciences (Europe), 2019.
3. Brian Staber, Computational Structural Mechanics Association PhD Prize: Best PhD Thesis in Computational Mechanics in France (national award), Computational Structural Mechanics Association (France), 2019.
4. Anthony Hun, First Prize at PechaKucha Talk Competition for PhD Students (institutional award), Université Paris-Est (France), 2019.

Scholarship Overview

- Peer-reviewed book chapters (invited): **3** (**2** published, **1** in press).
- Peer-reviewed papers: **42** (**40** published, **2** under review).
- Communications (including invited talks and keynotes) in international/national conferences, workshops and seminars: **124**.
- H-index: 20 (Google Scholar), 16 (Scopus).
- Advising activities: **2** B.S. projects, **12** M.S. projects, **11** Ph.D. theses (**7** defended), and **3** post-doctoral researchers.
- (Co-)Organizer of **14** mini-symposiums, **1** thematic school, **2** workshops, and member of **4** scientific committees.
- External funding:
 - At Duke (since July 2017): **\$4,049,619** total, split as follows:
 - * Contract and research Grants: \$1,050,094 total (\$968,516 for Guilleminot's group).
 - * Training grants: \$2,999,525 total.
 - At Université Paris-Est Marne-la-Vallée (France): €748,955 (\approx \$861,298) total.

Publications

Italicized names correspond to students for whom I serve(d) as primary advisor.

Book Chapters

3. *J. Guilleminot*, Modeling Non-Gaussian Random Fields of Material Properties in Multiscale Mechanics of Materials (invited, peer-reviewed; 47 pages), Uncertainty Quantification in Multiscale Materials Modeling, Elsevier, 2020.
2. *B. Staber*, *J. Guilleminot*, Advances in the Stochastic Modeling of Uncertainties in Constitutive Laws at Small and Finite Strains (invited, peer-reviewed; 27 pages), ACIER series (ASME Press), accepted on October 31, 2018.
1. *J. Guilleminot*, *C. Soize*, Non-Gaussian Random Fields in Multiscale Mechanics of Heterogeneous Materials (invited, peer-reviewed; 10 pages), Encyclopedia of Continuum Mechanics, Springer-Verlag Berlin Heidelberg, 2020.

Papers in Refereed Journals

42. *D.-A. Hun*, *J. Yvonnet*, *J. Guilleminot*, *A. Dadda*, *A.-M. Tang* and *M. Bornert*, Desiccation cracking of heterogeneous clayey soil: experiments, modelling and simulations, submitted (2021).
41. *H. Zhang*, *J. Guilleminot* and *L. Gomez*, Stochastic modeling of geometrical uncertainties on complex domains, with application to additive manufacturing and brain interface geometries, submitted (2020).
40. *T. Hu*, *J. Guilleminot* and *J. E. Dolbow*, A Phase-Field Model of Fracture with Frictionless Contact and Random Fracture Properties: Application to Thin-Film Fracture and Soil Dessication, *Computer Methods in Applied Mechanics and Engineering*, 368, 113106 (2020).
39. *J. Guilleminot* and *J. E. Dolbow*, Data-Driven Enhancement of Fracture Paths in Random Composites, *Mechanics Research Communications*, 103, 103443 (2020). *Among the most downloaded papers in the last 90 days, between 01/2020 and 12/2020.*
38. *D.-A. Hun*, *J. Guilleminot*, *J. Yvonnet* and *M. Bornert*, Stochastic multi-scale modeling of crack propagation in random heterogeneous media, *International Journal for Numerical Methods in Engineering*, 119, 1325-1344 (2019). *Among the top 10% most downloaded papers between 01/2018 and 12/2019.*
37. *J. Guilleminot*, *A. Asadpoure* and *M. Tootkaboni*, Topology optimization under topologically dependent material uncertainties, *Structural and Multidisciplinary Optimization*, 60, 1283-1287 (2019).
36. *S. Chu* and *J. Guilleminot*, Stochastic multiscale analysis with random fields of material properties defined on non-convex domains, *Mechanics Research Communications*, 97, 39-45 (2019).
35. *H. Wang*, *J. Guilleminot* and *C. Soize*, Modeling uncertainties in molecular dynamics simulations using a stochastic reduced-order basis, *Computer Methods in Applied Mechanics and Engineering*, 354, 37-55 (2019).
34. *B. Staber*, *J. Guilleminot*, *C. Soize*, *J. Michopoulos* and *A. Iliopoulos*, Stochastic modeling and identification of an hyperelastic constitutive model for laminated composites, *Computer Methods in Applied Mechanics and Engineering*, 347, 425-444 (2019).
33. *V. H. Trinh*, *V. Langlois*, *J. Guilleminot*, *C. Perrot*, *Y. Khidas* and *O. Pitois*, Tuning membrane content of sound absorbing cellular foams: Fabrication, experimental evidence and multiscale numerical simulations, *Materials & Design*, 162, 345-361 (2019).
32. *O. Colómes*, *G. Scovazzi* and *J. Guilleminot*, On the robustness of variational multiscale error estimators for the forward propagation of uncertainty, *Computer Methods in Applied Mechanics and Engineering*, 342, 384-413 (2018).
31. *M. He*, *C. Perrot*, *J. Guilleminot*, *P. Leroy* and *G. Jacquas*, Multiscale prediction of acoustic properties for glass wools: computational study and experimental validation, *Journal of the Acoustical Society of America*, 143, 3283-3299 (2018).
30. *V. P. Tran*, *S. Brisard*, *J. Guilleminot* and *K. Sab*, Mori-Tanaka estimates of the effective elastic properties of stress-gradient composites, *International Journal of Solids and Structures*, 146, 55-68 (2018).
29. *B. Staber* and *J. Guilleminot*, A random field model for anisotropic strain energy functions and its application for uncertainty quantification in vascular mechanics, *Computer Methods in Applied Mechanics and Engineering*, 133, 94-113 (2018).
28. *V. H. Trinh*, *J. Guilleminot* and *C. Perrot*, On the construction of multiscale surrogates for design optimization of acoustical materials, *Acta Acustica united with Acustica*, 104, 1-4 (2018).

27. *B. Staber* and *J. Guilleminot*, Stochastic modeling and generation of random fields of elasticity tensors: a unified information-theoretic approach, *Comptes-Rendus Mécanique* (Proceedings of the French Academy of Sciences), 345, 399-416 (2017).
26. *A. Waseem*, *J. Guilleminot* and *I. Temizer*, Stochastic multiscale analysis in hydrodynamic lubrication, *International Journal for Numerical Methods in Engineering*, 112, 1070-1093 (2017).
25. *B. Staber* and *J. Guilleminot*, Functional approximation and projection of stored energy functions in computational homogenization of hyperelastic materials: a probabilistic perspective, *Computer Methods in Applied Mechanics and Engineering*, 313, 1-27 (2017).
24. *B. Staber* and *J. Guilleminot*, Stochastic hyperelastic constitutive laws and identification procedure for soft biological tissues with intrinsic variability, *Journal of the Mechanical Behavior of Biomedical Materials*, 65, 743-752 (2017).
23. *B. Staber* and *J. Guilleminot*, Stochastic modelling of the Ogden class of stored energy functions for hyperelastic materials: the compressible case, *ZAMM - Journal of Applied Mathematics and Mechanics*, 97(3), 273-295 (2017).
22. *V. P. Tran*, *J. Guilleminot*, *S. Brisard* and *K. Sab*, Stochastic modeling of mesoscopic elasticity random field, *Mechanics of Materials*, 93, 1-12 (2016).
21. *T. T. Le*, *J. Guilleminot* and *C. Soize*, Stochastic continuum modeling of random interphases from atomistic simulations. Application to a polymer nanocomposite, *Computer Methods in Applied Mechanics and Engineering*, 303, 430-449 (2016).
20. *B. Staber* and *J. Guilleminot*, Stochastic modeling of a class of stored energy functions for incompressible hyperelastic materials with uncertainties, *Comptes-Rendus Mécanique* (Proceedings of the French Academy of Sciences), 343, 503-514 (2015).
19. *B. Staber* and *J. Guilleminot*, Approximate solutions of Lagrange multipliers for information-theoretic random field models, *SIAM/ASA Journal on Uncertainty Quantification*, 3, 559-621 (2015).
18. *J. Guilleminot* and *C. Soize*, Itô SDE-based generator for a class of non-Gaussian vector-valued random fields in uncertainty quantification, *SIAM Journal of Scientific Computing*, 36(6), A2763-A2786 (2014).
17. *I. Baydoun*, *E. Savin*, *R. Cottreau*, *D. Clouteau* and *J. Guilleminot*, Kinetic modeling of multiple scattering of elastic waves in heterogeneous anisotropic media, *Wave Motion*, 51(8), 1325-1348 (2014).
16. *J. Guilleminot*, *T.-T. Le* and *C. Soize*, A multiscale stochastic approach for modeling the apparent behavior of complex materials: application to random porous materials with interphases, *Acta Mechanica Sinica*, 29(6), 773-782 (2013).
15. *J. Guilleminot* and *C. Soize*, Random fields with symmetry properties: Application to the mesoscopic modeling of elastic random media, *SIAM Multiscale Modeling & Simulation*, 11(3), 840-870 (2013).
14. *J. Guilleminot* and *C. Soize*, On the statistical dependence for the components of random elasticity tensors exhibiting material symmetry properties, *Journal of Elasticity*, 111(2), 109-130 (2013).
13. *A. Noshadravan*, *R. Ghanem*, *J. Guilleminot*, *I. Atodaria* and *P. Peralta*, Validation of a probabilistic model for mesoscale elasticity tensor of random polycrystals, *International Journal for Uncertainty Quantification*, 3(1), 73-100 (2013).
12. *J. Guilleminot* and *C. Soize*, Probabilistic modeling of apparent tensors in elastostatics: a MaxEnt approach under material symmetry and stochastic boundedness constraints, *Probabilistic Engineering Mechanics*, 28, 118-124 (2012).

11. J. Guilleminot and C. Soize, Stochastic modeling of anisotropy in multiscale analysis of heterogeneous materials: A comprehensive overview on random matrix approaches, *Mechanics of Materials*, 44 (special issue on Microstructures and Anisotropies), 35-46 (2012).
10. J. Guilleminot, C. Soize and R. Ghanem, Stochastic representation for anisotropic permeability tensor random fields, *International Journal for Numerical and Analytical Methods in Geomechanics*, 36(13), 1592-1608 (2012).
9. J. Guilleminot and C. Soize, Generalized Stochastic approach for constitutive equation in linear elasticity: a random matrix model, *International Journal for Numerical Methods in Engineering*, 90(5), 613-635 (2012).
8. J. Guilleminot, A. Noshadran, R. Ghanem and C. Soize, A probabilistic model for bounded elasticity tensor random fields with application to polycrystalline microstructures, *Computer Methods in Applied Mechanics and Engineering*, 200(17-20), 1637-1648 (2011).
7. J. Guilleminot and C. Soize, Non-Gaussian positive-definite matrix-valued random fields with constrained eigenvalues: application to random elasticity tensors with uncertain material symmetries, *International Journal for Numerical Methods in Engineering*, 88(11), 1128-1151 (2011).
6. J. Guilleminot and C. Soize, A stochastic model for elasticity tensors with uncertain material symmetries, *International Journal of Solids and Structures*, 47, 3121-3130 (2010).
5. J. Guilleminot, C. Soize and D. Kondo, Mesoscale probabilistic models for the elasticity tensor of fiber reinforced composites: Experimental identification and numerical aspects, *Mechanics of Materials*, 41, 1309-1322 (2009).
4. *J.S.U. Schell*, J. Guilleminot, C. Binétruy and P. Krawczak, Computational and experimental analysis of fusion bonding in thermoplastic composites: Influence of process parameters, *Journal of Materials Processing Technology*, 209, 5211-5219 (2009).
3. J. Guilleminot, C. Soize, D. Kondo and C. Binétruy, Theoretical framework and experimental procedure for modelling mesoscopic volume fraction stochastic fluctuations in fiber reinforced composites, *International Journal of Solids and Structures*, 45, 5567-5583 (2008).
2. J. Guilleminot, S. Comas-Cardona, D. Kondo, C. Binétruy and P. Krawczak, Multiscale modelling of the composite reinforced foam core of a 3D sandwich structure, *Composites Sciences and Technology*, 68, 1777-1786 (2008).
1. J. Guilleminot, D. Kondo, C. Binétruy, S. Panier, S. Hariri and P. Krawczak, A micromechanical analysis of a local failure criterion for particle-reinforced composites, *Composites Sciences and Technology*, 67, 2384-2389 (2007).

Papers in Conference Proceedings

3. Micro-macro acoustic modeling of heterogeneous foams with nucleation perturbation, C. T. Nguyen, J. Guilleminot, F. Detrez, V. Langlois, M. Bornert, A Duval, and C. Perrot (Invited paper), 11th International Styrian Noise, Vibration and Harshness (ISNVH) Congress, Graz, Austria, June 17-19 (2020).
2. Numerical multiscale analysis of acoustical properties/microstructure relationships for a polydisperse polymeric foam, 24th French National Congress on Mechanics, Brest, France, August 26-30 (2019).
1. Computational and experimental analysis of acoustic properties for random glass wools, M. He, C. Perrot, and J. Guilleminot, The 46th International Congress and Exposition on Noise Control Engineering (Inter-Noise 2017), Hong-Kong, China, August 27-30 (2017).

Papers in Non-Refereed Journals

1. J. Guilleminot, C. Soize, D. Kondo and C. Binétruy, Stochastic model identification of fibre-reinforced composites at the mesoscale, *JEC Composites Magazine*, 45(45), 73-74 (2008).

Oral Presentations at International Conferences

82. (Upcoming) J. Guilleminot, T. Hu, and J. Dolbow, Stochastic modeling and dimensionality reduction for phase-field simulations of brittle fracture in heterogeneous materials, 10th International Conference on Multiscale Materials Modeling, Baltimore, MD, USA, November 7-11 (2021).
81. (Upcoming) *P. Chen* and J. Guilleminot, Construction and inverse identification of stochastic models for soft biological tissues based on experiments, 16th U.S. National Congress on Computational Mechanics (USNCCM-16), Chicago, IL, USA, July 25-29 (2021).
80. (Upcoming) *S. Chu* and J. Guilleminot, Stochastic modeling and identification of material properties on 3D-printed structures, with application to orthopedic implants, 16th U.S. National Congress on Computational Mechanics (USNCCM-16), Chicago, IL, USA, July 25-29 (2021).
79. (Upcoming) *H. Zhang*, L. Gomez, and J. Guilleminot, Uncertainty quantification of TMS simulations considering spatially-determined MRI data segmentation errors, 16th U.S. National Congress on Computational Mechanics (USNCCM-16), Chicago, IL, USA, July 25-29 (2021).
78. (Upcoming) *H. Zhang* and J. Guilleminot, Stochastic modelling of geometrical uncertainties on complex structures produced by additive manufacturing, 4th ECCOMAS Thematic Conference on International Conference on Uncertainty Quantification in Computational Sciences and Engineering (UNCECOMP 2021), Athens, 27-30 June (2021).
77. (Upcoming) *P. Chen* and J. Guilleminot, Uncertainty quantification for soft biological tissues: Stochastic modeling and identification based on physical experiments, 4th ECCOMAS Thematic Conference on International Conference on Uncertainty Quantification in Computational Sciences and Engineering (UNCECOMP 2021), Athens, 27-30 June (2021).
76. (Upcoming) *S. Chu* and J. Guilleminot, Stochastic modeling of material uncertainties on structures produced by additive manufacturing, 4th ECCOMAS Thematic Conference on International Conference on Uncertainty Quantification in Computational Sciences and Engineering (UNCECOMP 2021), Athens, 27-30 June (2021).
75. (Upcoming) T. Hu, J. Guilleminot, and J. Dolbow, A phase-field model of fracture with frictionless contact and random fracture properties, Conference of Engineering Mechanics Institute (EMI-2021) and Probabilistic Mechanics & Reliability Conference 2021 (PMC-2021), New-York, NY, USA, May 25-28 (2021).
74. (Upcoming) *S. Chu* and J. Guilleminot, Stochastic modeling and generation of material properties on geometries produced by additive manufacturing, Conference of Engineering Mechanics Institute (EMI-2021) and Probabilistic Mechanics & Reliability Conference 2021 (PMC-2021), New-York, NY, USA, May 25-28 (2021).
73. (Upcoming) *P. Chen* and J. Guilleminot, Stochastic modeling and statistical inverse identification of soft biological tissues, Conference of Engineering Mechanics Institute (EMI-2021) and Probabilistic Mechanics & Reliability Conference 2021 (PMC-2021), New-York, NY, USA, May 25-28 (2021).
72. T. Hu, J. Guilleminot, and J. Dolbow, A phase-field model of fracture with frictionless contact and random fracture properties, 14-th World Congress in Computational Mechanics (WCCM14) and 8-th European Congress on Computational Methods in Applied Sciences and Engineering (ECCOMAS 2020), Paris, France, January 11-15 (2021).

71. T. Hu, J. Guilleminot, and J. Dolbow, Stochastic modeling and inverse identification of fracture properties based on phase-field simulations and physical experiments, 14-*th* World Congress in Computational Mechanics (WCCM14) and 8-*th* European Congress on Computational Methods in Applied Sciences and Engineering (ECCOMAS 2020), Paris, France, January 11-15 (2021).
70. C.T. Nguyen, V. Langlois, J. Guilleminot, F. Detrez, M. Bornert, A. Duval and C. Perrot, Data-guided computational analysis of cross-correlations for the digital reconstruction of membranes in polydisperse foams: Towards a novel optimization path, Automotive NVH Comfort 2020, Le Mans, France, October 14-15 (2020).
69. P. Chen and J. Guilleminot, Stochastic modeling and statistical inverse identification of soft biological tissues, Society of Engineering Science (SES) 57th Annual Technical Meeting, Minneapolis, MN, USA, September 29-October 1 (2020).
68. H. Zhang, L. Gomez, and J. Guilleminot, Uncertainty quantification in high-fidelity simulations for transcranial magnetic stimulation, Society of Engineering Science (SES) 57th Annual Technical Meeting, Minneapolis, MN, USA, 29-October 1 (2020).
67. S. Chu, H. Wang, and J. Guilleminot, Stochastic modeling and generation of material properties on geometries produced by additive manufacturing, Society of Engineering Science (SES) 57th Annual Technical Meeting, Minneapolis, MN, USA, 29-October 1 (2020).
66. T. Hu, J. Guilleminot, and J. Dolbow, Stochastic modeling and inverse identification of fracture properties based on phase-field simulations and physical experiments, Society of Engineering Science (SES) 57th Annual Technical Meeting, Minneapolis, MN, USA, 29-October 1 (2020).
65. C. T. Nguyen, J. Guilleminot, F. Detrez, V. Langlois, A. Duval and C Perrot, Micro-macro acoustic modeling of heterogeneous foams with nucleation perturbation, 11th International Styrian Noise, Vibration and Harshness (ISNVH) Congress, Graz, Austria, June 17-19 (2020).
64. B. Staber and J. Guilleminot, Stochastic analysis, simulation, and identification of hyperelastic constitutive equations, ECCOMAS Young Investigators Conference 2019, Kraków, Poland, September 1-6 (2019).
63. B. Staber and J. Guilleminot, Stochastic analysis, simulation and identification of hyperelastic constitutive models, French National Colloquium in Structural Computations (CSMA 2019), Giens, France, May 13-17 (2019).
62. C.T. Nguyen, C. Perrot, F. Detrez and J. Guilleminot, Numerical multiscale analysis of acoustical properties/microstructure relationships for a polydisperse polymeric foam, 24-*th* French National Congress on Mechanics, Brest, France, August 26-30 (2019).
61. J. Guilleminot, A. Asadpoure and M. Tootkaboni, Topology optimization under topologically evolving materials uncertainties, Conference of Engineering Mechanics Institute (EMI-2019), Pasadena, CA, USA, June 18-21 (2019).
60. A. Hun, J. Guilleminot, J. Yvonnet, A. Dadda, A.M. Tang and M. Bornert, Computational modeling of crack propagation in a heterogeneous medium under drying conditions, Conference of Engineering Mechanics Institute (EMI-2019), Pasadena, CA, USA, June 18-21 (2019).
59. J. Guilleminot and J. Dolbow, Data-driven modeling and sampling of crack paths in random media using a machine learning approach, Conference of Engineering Mechanics Institute (EMI-2019), Pasadena, CA, USA, June 18-21 (2019).
58. S. Chu and J. Guilleminot, Stochastic modeling of non-Gaussian material parameters on nonconvex geometries, Conference of Engineering Mechanics Institute (EMI-2019), Pasadena, CA, USA, June 18-21 (2019).

57. H. Wang, J. Guilleminot and C. Soize, Uncertainty quantification in molecular dynamics simulations using a stochastic reduced order basis, Conference of Engineering Mechanics Institute (EMI-2019), Pasadena, CA, USA, June 18-21 (2019).
56. J. Guilleminot, A. Asadpoure and M. Tootkaboni, A stochastic framework to perform shape optimization with topologically dependent uncertainties, 15th U.S. National Congress on Computational Mechanics (USNCCM-15), Austin, TX, USA, July 28-August 1 (2019).
55. *S. Chu* and J. Guilleminot, Stochastic multiscale analysis with material properties defined on complex domains, 15th U.S. National Congress on Computational Mechanics (USNCCM-15), Austin, TX, USA, July 28-August 1 (2019).
54. H. Wang, J. Guilleminot and C. Soize, Stochastic modeling of uncertainties in molecular dynamics simulations using a stochastic reduced order basis, 15th U.S. National Congress on Computational Mechanics (USNCCM-15), Austin, TX, USA, July 28-August 1 (2019).
53. *M. Hasan* and J. Guilleminot, Uncertainty quantification and stochastic modeling of hyperelastic constitutive models for soft biological tissues, 15th U.S. National Congress on Computational Mechanics (USNCCM-15), Austin, TX, USA, July 28-August 1 (2019).
52. *A. Hun*, J. Guilleminot, J. Yvonnet and M. Bornert, Stochastic multiscale modeling of crack propagation in heterogeneous materials, French National Colloquium in Structural Computations (CSMA 2019), Giens, France, May 13-17 (2019).
51. *B. Staber* and J. Guilleminot, Stochastic modeling and sampling of anisotropic stored energy functions on complex geometries, 13-th World Congress in Computational Mechanics (WCCM13), New-York, NY, USA, July 22-27 (2018).
50. *A. Hun*, J. Guilleminot, J. Yvonnet and M. Bornert, Construction of simplified models for crack propagation in random heterogeneous media, 13-th World Congress in Computational Mechanics (WCCM13), New-York, NY, USA, July 22-27 (2018).
49. *A. Hun*, J. Guilleminot, J. Yvonnet and M. Bornert, Stochastic mesoscale modeling of crack propagation in random heterogeneous media, Conference of Engineering Mechanics Institute (EMI-2018), Boston, MA, USA, May 29-June 1 (2018).
48. O. Colomés, G. Scovazzi and J. Guilleminot, On the robustness of variational multiscale error estimators for the forward propagation of uncertainty, SIAM Conference on Uncertainty Quantification, Garden Grove, CA, USA, April 16-19 (2018).
47. *B. Staber* and J. Guilleminot, Mathematical modeling and sampling of stochastic nonlinear constitutive laws on smooth manifolds, SIAM Conference on Uncertainty Quantification, Garden Grove, CA, USA, April 16-19 (2018).
46. *M. He*, H. T. Luu, C. Perrot, R. Panneton, J. Guilleminot, V. Monchiet, P. Leroy and G. Jacques, Advances in the microstructure and transport properties of random fibrous materials, 5th Symposium on the Acoustics of Poro-Elastic Materials, Le Mans, France, December 6-8 (2017).
45. *M. He*, C. Perrot and J. Guilleminot, Computational and experimental analysis of acoustic properties for random glass wools, Inter-Noise 2017, Hong Kong, China, August 27-30 (2017).
44. *B. Staber* and J. Guilleminot, Construction and identification of stochastic constitutive laws for soft biological tissues, 14th U.S. National Congress on Computational Mechanics (USNCCM-14), Montreal, Canada, July 17-20 (2017).

43. *B. Staber* and *J. Guilleminot*, Stochastic modeling and propagation of uncertainties in nonlinear multiscale approaches: Application to hyperelastic composites, 2nd ECCOMAS Thematic Conference on International Conference on Uncertainty Quantification in Computational Sciences and Engineering (UNCECOMP 2017), Rhodes Island, Greece, June 15-17 (2017).
42. *B. Staber* and *J. Guilleminot*, Stochastic modeling of Ogden strain energy functions for uncertainty quantification: Application to soft biological tissues, 2nd ECCOMAS Thematic Conference on International Conference on Uncertainty Quantification in Computational Sciences and Engineering (UNCECOMP 2017), Rhodes Island, Greece, June 15-17 (2017).
41. *B. Staber* and *J. Guilleminot*, On the definition of closest approximations for effective potentials in nonlinear multiscale methods, 2016 EMI International Conference of ASCE, Metz, France, October 25-27 (2016).
40. *V. P. Tran*, *J. Guilleminot*, S. Brisard and K. Sab, Homogenization of heterogeneous materials by means of prior probabilistic model, 2016 EMI International Conference of ASCE, Metz, France, October 25-27 (2016).
39. *B. Staber* and *J. Guilleminot*, Uncertainty quantification for hyperelastic materials: an information-theoretic stochastic model, 12th World Congress on Computational Mechanics (WCCM XII), Seoul, Korea, July 24-29 (2016).
38. *V. P. Tran*, *J. Guilleminot*, S. Brisard and K. Sab, Stochastic modeling and validation of consistent mesoscopic elasticity random fields (keynote), Emerging Trends in Applied Mathematics and Mechanics (ETAMM 2016), Perpignan, France, May 30-June 3 (2016).
37. *B. Staber* and *J. Guilleminot*, Stochastic modeling of random hyperelastic materials, Emerging Trends in Applied Mathematics and Mechanics (ETAMM 2016), Perpignan, France, May 30-June 3 (2016).
36. *B. Staber* and *J. Guilleminot*, Stochastic modeling of hyperelastic materials with uncertainties, VII European Congress on Computational Methods in Applied Sciences and Engineering (ECCOMAS Congress 2016), Crete Island, Greece, June 5-10 (2016).
35. *B. Staber* and *J. Guilleminot*, Stochastic modeling of hyperelastic materials, Probabilistic Mechanics & Reliability Conference 2016 (PMC 2016), Nashville, TN, USA, May 22-25 (2016).
34. *B. Staber* and *J. Guilleminot*, Probabilistic modeling of hyperelastic materials with uncertainties, 22-nd French National Congress on Mechanics, Lyon, France, August 24-28 (2015).
33. *T. T. Le*, *J. Guilleminot* and C. Soize, Stochastic modeling in continuum mechanics and inverse calibration of interphase properties based on atomistic simulations, 22-nd French National Congress on Mechanics, Lyon, France, August 24-28 (2015).
32. *V. P. Tran*, *J. Guilleminot*, S. Brisard and K. Sab, Calibration and validation of an information-theoretic stochastic model for mesoscale stiffness in computational homogenization, 22-nd French National Congress on Mechanics, Lyon, France, August 24-28 (2015).
31. *V. P. Tran*, *J. Guilleminot*, S. Brisard and K. Sab, Stochastic analysis of mesoscopic elasticity random fields obtained by filtering framework, 13th U.S. National Congress on Computational Mechanics (USNCCM-13), San Diego, CA, USA, July 26-30 (2015).
30. *T. T. Le*, *J. Guilleminot* and C. Soize, Stochastic continuum modeling of random interphases based on atomistic simulations: application to a nanoreinforced polymer, 13th U.S. National Congress on Computational Mechanics (USNCCM-13), San Diego, CA, USA, July 26-30 (2015).

29. J. Guilleminot and C. Soize, Random field modeling and generation for stochastic multiscale analysis, 1st ECCOMAS Thematic Conference on International Conference on Uncertainty Quantification in Computational Sciences and Engineering (UNCECOMP 2015), Crete Island, Greece, May 25-27 (2015).
28. *T. T. Le*, J. Guilleminot and C. Soize, Stochastic multiscale modeling of random interphases in nanoreinforced polymers, 1st ECCOMAS Thematic Conference on International Conference on Uncertainty Quantification in Computational Sciences and Engineering (UNCECOMP 2015), Crete Island, Greece, May 25-27 (2015).
27. *T. T. Le*, J. Guilleminot and C. Soize, Stochastic continuum modeling of random interphases from atomistic simulations (invited talk), European colloquium on Multiscale computational methods for bridging scales in materials and structures (Euromech-559), Eindhoven University of Technology, Eindhoven, The Netherlands, February 23-25 (2015).
26. *B. Staber* and J. Guilleminot, Calibration and validation of information-theoretic random field models for physical apparent properties, 14th European Mechanics of Materials Conference (EMMC4), Göteborg, Sweden, August 27-29 (2014).
25. J. Guilleminot and C. Soize, Generation of non-Gaussian vector-valued random fields for stochastic representation in multiscale analysis: an adaptive algorithm based on Itô stochastic differential equations, 14th European Mechanics of Materials Conference (EMMC4), Göteborg, Sweden, August 27-29 (2014).
24. *T. T. Le*, J. Guilleminot and C. Soize, Stochastic modeling of interphase effects for nanoreinforced heterogeneous materials, 11th World Congress on Computational Mechanics (WCCM-XI) coupled with the 5th European Conference on Computational Mechanics (ECCM V), Barcelona, Spain, July 20-25 (2014).
23. J. Guilleminot and C. Soize, Adaptive ISDE-based algorithm for the generation of non-Gaussian vector-valued random fields, 11th World Congress on Computational Mechanics (WCCM-XI) coupled with the 5th European Conference on Computational Mechanics (ECCM V), Barcelona, Spain, July 20-25 (2014).
22. I. Baydoun, E. Savin, R. Cottreau, D. Clouteau and J. Guilleminot, Anisotropic transport and diffusion of elastic waves in random media, 2nd ECCOMAS Young Investigators Conference (YIC 2013), Bordeaux, France, September 2-6 (2013).
21. *T. T. Le*, J. Guilleminot and C. Soize, Probabilistic modeling of surface effects for nanoreinforced materials, 21-st French National Congress on Mechanics, Bordeaux, France, August 26-30 (2013).
20. J. Guilleminot and C. Soize, Generation of non-Gaussian tensor-valued random fields using an ISDE-based algorithm, 11th International Conference on Structural Safety & Reliability (ICOSSAR 2013), New York, NY, USA, June 16-20 (2013).
19. J. Guilleminot and C. Soize, A nonparametric stochastic model for non-Gaussian random fields with $SO(n, \mathbb{R})$ -invariance, 6th European Congress on Computational Methods in Applied Sciences and Engineering (ECCOMAS 2012), Vienna, Austria, September 10-14 (2012).
18. J. Guilleminot and C. Soize, Prior representations of random fields for stochastic multiscale modeling, IUTAM Symposium on stochastic multiscale approaches, Karlsruhe, Germany, June 25-29 (2012).
17. *A. Noshadravan*, R. Ghanem, J. Guilleminot, I. Atodaria and P. Peralta, Validation of a random matrix model for mesoscale elastic description of materials with microstructures, SIAM Conference on Uncertainty Quantification, Raleigh, NC, USA, April 2-5 (2012).

16. J. Guilleminot and C. Soize, Recent advances in prior probabilistic representations for non-Gaussian mesoscale random fields of apparent properties (invited talk), European colloquium on Multi-scale Computational Homogenization of Heterogeneous Structures and Materials (Euromech-537), Marne-la-Vallée, France, March 26-28 (2012).
15. J. Guilleminot and C. Soize, Construction of stochastic models within the framework of information theory (keynote), 20-th French National Congress on Mechanics, Besançon, France, August 28-September 2 (2011).
14. *A. Noshadravan*, R. Ghanem, J. Guilleminot and P. Peralta, Validation of a probabilistic model for mesoscale elasticity tensor of random polycrystals, 11th U.S. National Congress on Computational Mechanics (USNCCM-11), Minneapolis, MN, USA, July 25-29 (2011).
13. J. Guilleminot and C. Soize, Stochastic model for matrix-valued random fields with constrained eigenvalues: application to stochastic elasticity and permeability tensors, 11th U.S. National Congress on Computational Mechanics (USNCCM-11), Minneapolis, MN, USA, July 25-29 (2011).
12. *A. Noshadravan*, R. Ghanem, J. Guilleminot and P. Peralta, A validation methodology for a mesoscale probabilistic model of materials with microstructures", Conference of Engineering Mechanics Institute (EMI-2011), Northeastern University, Boston, MA, USA, June 2-4 (2011).
11. J. Guilleminot and C. Soize, MaxEnt approach for the probabilistic modeling of matrix-valued random fields with constrained eigenvalues: application to apparent mechanical and transport properties, Sixth M.I.T. Conference on Computational Fluid and Solid Mechanics, Cambridge, MA, USA, June 15-17 (2011).
10. J. Guilleminot and C. Soize, On nonparametric stochastic modeling of elasticity tensors based on material symmetry constraints, Engineering Mechanics Institute 2010 (EMI-2010), Los Angeles, CA, USA, August 8-11 (2010).
9. J. Guilleminot and C. Soize, On mesoscopic probabilistic modeling of random anisotropic media under material symmetry constraints, 16th US National Congress on Theoretical and Applied Mechanics (USNCTAM-16), University Park, PA, USA, June 27-July 2 (2010).
8. J. Guilleminot and C. Soize, A stochastic model for elasticity tensors exhibiting uncertainties on material symmetries, Sixth International Conference on Computational Stochastic Mechanics (CSM-6), Rhodes, Greece, June 13-16 (2010).
7. J. Guilleminot, C. Soize, D. Kondo and C. Binétruy, Stochastic modeling of the mesoscopic elasticity tensor random field for composite materials, 17th International Conference on Composite Materials (ICCM-17), Edinburgh, Scotland, July 27-31 (2009).
6. J. Guilleminot, C. Soize, D. Kondo and C. Binétruy, Probabilistic modeling of the elasticity tensor random field at the mesoscale of reinforced composites, 10th US National Congress on Computational Mechanics (USNCCM-10), Columbus, OH, USA, July 16-19 (2009).
5. J. Guilleminot, C. Soize, D. Kondo and C. Binétruy, On modelling reinforced composites exhibiting stochastic fluctuations on volume fraction: a stochastic micromechanical approach, XXII International Congress of Theoretical and Applied Mechanics (ICTAM-2008), Adelaide, Australia, August 24-29 (2008).
4. J. Guilleminot, C. Soize, D. Kondo and C. Binétruy, On stochastic homogenization of fiber reinforced composites exhibiting a randomly fluctuating volume fraction, 8th World Congress on Computational Mechanics (WCCM-VIII) - 5th European Congress on Computational Methods in Applied Sciences and Engineering (ECCOMAS-2008), Venice, Italy, June 30-July 4 (2008).

3. J. Guilleminot, S. Comas-Cardona, D. Kondo and C. Binétruy, Micromechanical modelling of the composite reinforced foam core of a 3D sandwich structure manufactured by the Napco technology, 8th International Conference on Sandwich Structures (ICSS-8), Porto, Portugal, May 6-8 (2008).
2. J. Guilleminot, C. Soize, D. Kondo and C. Binétruy, Micromechanical propagation of uncertainties for reinforced polymers, 18-th French National Congress on Mechanics, Grenoble, France, August 27-31 (2007).
1. J. Guilleminot, M. Deleglise, C. Binétruy and P. Krawczak, Stochastic modeling of resin flow in fibrous media in liquid composite molding, 16th International Conference on Composite Materials (ICCM-16), Kyoto, Japan, July 8-13 (2007).

Invited Seminars

19. J. Guilleminot, Stochastic modeling for uncertainty quantification: application to design optimization and additive manufacturing, Department of Mechanical Engineering, University of Massachusetts Dartmouth, North Dartmouth, MA, USA, October 30 (2020).
18. J. Guilleminot, A tour of stochastic modeling for computational mechanics and multiscale analysis, Pacific Northwest National Laboratory, Richland, WA, USA, December 10 (2019).
17. J. Guilleminot, A stochastic data-driven approach to brittle fracture modeling, Sandia National Laboratory, Albuquerque, NM, USA, September 4 (2019).
16. J. Guilleminot, Stochastic modeling aspects for computational multiscale analysis and uncertainty quantification, Sandia National Laboratory, Albuquerque, NM, USA, October 4 (2018).
15. J. Guilleminot, Stochastic modeling for uncertainty quantification, Institute for Computational Sciences, University of Luxembourg, Esch-sur-Alzette, Luxembourg, June 21 (2018).
14. J. Guilleminot, Stochastic modeling for uncertainty quantification in computational multiscale approaches, Department of Civil Engineering, Johns Hopkins University, Baltimore, MD, USA, March 2 (2017).
13. J. Guilleminot, Stochastic modeling for uncertainty quantification in computational multiscale approaches, Applied Mathematics Department, Duke University, Durham, NC, USA, March 1 (2017).
12. J. Guilleminot, Stochastic multiscale methods in mechanics of materials, Laboratoire IRDL, ENSTA Bretagne, Brest, France, May 11 (2016).
11. J. Guilleminot, Uncertainty quantification and stochastic multiscale methods in mechanics of materials, Department of Mechanical Engineering, Georgia Institute of Technology, Atlanta, GA, USA, March 28 (2016).
10. J. Guilleminot, Predictive science in (non)linear multiscale mechanics, Department of Civil and Environmental Engineering, Duke University, Durham, NC, USA, January 21 (2016).
9. J. Guilleminot, Stochastic modeling, generation and identification of random fields in mechanics of materials, Seminar Series in Scientific Computing, Ecole Nationale des Ponts et Chaussées, Champs-sur-Marne, France, December 17 (2015).
8. J. Guilleminot, Stochastic modeling and generation of tensor-valued random fields in multiscale analysis, Department of Applied Mathematics, Université de Nice, Nice, France, December 10 (2015).
7. J. Guilleminot, Random field modeling in mechanics of materials: model, adaptive random generator and calibration based on atomistic results, seminar in Computational Sciences, Ecole Centrale Paris, Châtenay-Malabry, France, May 7 (2015).

6. J. Guilleminot and C. Soize, Stochastic multiscale modeling and inverse identification of complex heterogeneous materials, Computational Multiphysics Systems Laboratory - Center of Computational Material Science, U.S. Naval Research Laboratory, Washington, DC, USA, April 9 (2015).
5. J. Guilleminot, Prior stochastic models and numerical algorithms for the modeling of non-Gaussian tensor-valued random fields, Institut Curie, Paris, France, December 6-7 (2012).
4. J. Guilleminot, Prior stochastic models in elastostatics, OMHA seminar, Ecole Centrale Paris, Châtenay-Malabry, France, March 14 (2011).
3. J. Guilleminot, A review on polynomial chaos expansions in high dimensions, University of Southern California, Los-Angeles, CA, September 1 (2010).
2. J. Guilleminot, On stochastic multiscale modeling of random media, University of Southern California, Los-Angeles, CA, March 2 (2010).
1. J. Guilleminot, Stochastic modeling in mechanics of heterogeneous materials, internal seminar, MSME laboratory, Université Paris-Est Marne-la-Vallée, Champs-sur-Marne, France, October 8 (2009).

Presentations at Workshops

18. H. Wang, J. Guilleminot, and M. Tootkaboni, Uncertainty Quantification of Load-Carrying Capacity in Thin Shell Structures Using Topology-Aware Stochastic Models, CFSRC Summer Symposium, Held remotely, May 26-27 (2020).
17. J. Guilleminot, Stochastic modeling for fracture mechanics (invited talk), Workshop on Experimental and Computational Fracture Mechanics: Validating peridynamics and phase field models for fracture prediction and experimental design, Baton Rouge, LA, USA, February 26-28 (2020).
16. C. Perrot, M. He, H. T. Lu, J. Guilleminot, P. Leroy, G. Jacques, R. Panneton, and P. Göransson, Identification of representative volume elements of glass wool panels, Workshop organized within the EU-funded project Designs for Noise Reducing Materials and Structures (DENORMS), University of Coimbra, Coimbra, Portugal, February 18-21 (2020).
15. *B. Staber*, J. Guilleminot, A stochastic framework to model variability in the nonlinear mechanical properties of arterial walls (invited talk), Workshop on Mechanics, Modeling and Simulation of Aortic Dissection, Riegersburg, Austria, October 9-11 (2019).
14. J. Guilleminot, A tour of stochastic modeling for materials science and multiscale analysis (invited talk), Workshop on Uncertainty Quantification in Computational Solid and Structural Materials Modeling, Baltimore, MD, USA, January 17-18 (2019).
13. *A. Hun*, J. Guilleminot, J. Yvonnet and M. Bornert, Stochastic mesoscale modeling of crack propagation in heterogeneous materials, MMCD Labex workshop, Champs-sur Marne, France, July 2-3 (2018).
12. *V. P. Tran*, S. Brisard, K. Sab and J. Guilleminot, Homogenization of stress-gradient composite materials, Workshop in Honor of Dominique Jeulin, Ile d'Oléron, France, June 17-23 (2018).
11. *V. P. Tran*, S. Brisard, K. Sab and J. Guilleminot, On stress-gradient materials: Formulation and homogenization, Workshop on Generalized continua and microstructures, Arpino, Italy, April 3-7 (2018).
10. *V. P. Tran*, S. Brisard, J. Guilleminot and K. Sab, Stress-gradient materials: an analytical exploration, Workshop on Computational Mechanics of Generalized Continua and Applications to Materials with Microstructure, Catania, Italy, October 29-31 (2015).

9. J. Guilleminot (invited talk), Stochastic modeling of diffusion operators, Workshop MoMaS Multiphasique, Nice, France, October 5-7 (2015).
8. *T. T. Le*, J. Guilleminot and C. Soize, Probabilistic modeling of interphases in nanosystems: modeling and statistical inverse calibration based on MD simulations, Workshop on Polymer Modeling, MSME laboratory, Université Paris-Est Marne-la-Vallée, Champs-sur-Marne, France, June 15 (2015).
7. J. Guilleminot, Stochastic inverse problems and parameter identification arising from applications in engineering mechanics (invited talk), COMINT (KAUST Research Conference focused on Recent Trends in Predicting and Monitoring the integrity of Composites), Thuwal, Kingdom of Saudi Arabia, June 1-2 (2015).
6. C. Soize, C. Desceliers, J. Guilleminot, *M. T. Nguyen*, J.-M. Allain and H. Gharbi, Statistical inverse method for the multiscale identification of the apparent random elasticity field of heterogeneous microstructures, Workshop on Inverse problems for multiscale and stochastic problems, Ecole des Ponts ParisTech, Champs-sur-Marne, France, October 2-3 (2014).
5. *T. T. Le*, J. Guilleminot and C. Soize, Modeling of random interphases in nanoreinforced polymers, Workshop on Polymer Modeling, Arts et Métiers Paristech, Paris, France, July 3 (2014).
4. C. Soize, C. Desceliers, J. Guilleminot, A. Nouy and *G. Perrin*, Representations of non-Gaussian positive-definite matrix-valued random fields for elliptic BVP and statistical inverse identification in high dimension using partial and limited experimental data, Workshop on Numerical Methods for High-Dimensional Problems, Ecole des Ponts ParisTech, Champs-sur-Marne, France, April 14-18 (2014).
3. J. Guilleminot, Random field models for the mesoscopic description of heterogeneous microstructures: application to permeability random fields (invited talk), Workshop on Computational Homogenization (GdR MeGe 3176), Université Paris-Est Marne-la-Vallée, Champs-sur-Marne, France, January 9 (2013).
2. J. Guilleminot, On the construction of prior algebraic stochastic models for mesoscale elasticity tensor random fields (invited talk), Beijing-Paris Workshop on Nano and Micro Mechanics, Université Paris-Est Marne-la-Vallée, Champs-sur-Marne, France, September 6-7 (2012).
1. J. Guilleminot, Stochastic multiscale modeling and anisotropy in linear elasticity (invited talk), Workshop Math-Méca, Université Paris-Est Marne-la-Vallée, Champs-sur-Marne, France, June 19-20 (2012).

Other Communications

5. J. Guilleminot, Uncertainty quantification on constrained spaces, Duke Computing Symposium, Duke University, December 10-11 (2020).
4. J. Guilleminot, Stochastic analysis for uncertainty quantification in computational mechanics, Introductory lectures for undergraduate students, Université Paris-Est Marne-la-Vallée, Champs-sur-Marne, France, May 5 (2017).
3. J. Guilleminot, C. Soize, *T. T. Le*, *B. Staber* and *V. P. Tran*, Modeling and generation of non-Gaussian random fields in anisotropic elasticity, Scientific Day of the Mechanics group, MSME laboratory, Université Paris-Est Marne-la-Vallée, Champs-sur-Marne, France, April 2 (2015).
2. J. Guilleminot and C. Soize, Prior stochastic models and numerical algorithms for the modeling of non-Gaussian tensor-valued random fields, Université Paris-Est Marne-la-Vallée, Champs-sur-Marne, France, January 8 (2013).

1. J. Guilleminot, Introduction to Random Matrices (2-hour lecture), University of Southern California, Los Angeles, CA, USA (2010).

Awarded Grants and Other Funded Projects

Duke University (period: 2017-Present)

Single-PI Research Grants

2. CAREER: A Stochastic Framework for Uncertainty Quantification on Complex Geometries: Application to Additive Manufacturing (2020-2025), funded by the National Science Foundation (award 1942928, CMMI/MoMS, program manager: Siddiq Qidwai). Total funded: \$563,164.
1. Stochastic Constitutive Laws in Nonlinear Mechanics: Application to the Multiscale Modeling of Arterial Walls for Robust Vascular Grafting (2017-2020), funded by the National Science Foundation (award 1726403, CMMI/MoMS, program manager: Siddiq Qidwai). Total funded: \$297,097.

Multi-PI Training Grants

1. NRT-HDR: Harnessing AI for Autonomous Material Design (aiM) (2020-2025), funded by the National Science Foundation (award 2022040, DGE, program manager: John Weishampel). PI: Cate Brinson; Co-PIs: David Banks, Stefano Curtarolo, Johann Guilleminot, and Cynthia Rudin. Total funded: \$2,999,525.

Contracts

2. Computational algorithms for dynamic fracture, contract awarded by Sandia National Laboratory (06-09/2019). PI: John Dolbow; Co-PI: Johann Guilleminot. Total funded: \$50,000 (\$38,339 for Guilleminot's group).
1. Modeling and Simulation in Additive Manufacturing: Uncertainties and Geometrical Complexity, contract awarded by the US Naval Research Laboratory (2018-2019). PI: Johann Guilleminot; Co-PI: Guglielmo Scovazzi. Total funded: \$139,833 (\$69,916 for Guilleminot's group).

Université Paris-Est Marne-la-Vallée, France (period: 2009-2017)

Single-PI Research Grants

1. Stochastic Modeling in Non-Linear Micromechanics (2012-2015), Early Career Award funded by the French National Research Agency (funding rate within the program: 16.5%). Total funded: 131,139 €.

Multi-PI Research Grants

3. Modeling of Microcracking in Complex Geomaterials, funded by the French Ministry of Research through Labex MMCD (2016-2019). PI: Johann Guilleminot; Co-PIs: Julien Yvonnet, Michel Bornert. Total funded: 140,000 €.
2. Anisotropic Transport and Diffusion of Elastic Waves, funded by "Fédération Francilienne de Mécanique" (2012-2013). PI: Eric Savin; Co-PIs: Régis Cottureau, Johann Guilleminot. Total funded: 50,000 €.

1. Advanced Methods using Stochastic Modeling in High Dimension for Uncertainty Modeling, Quantification and Propagation in Computational Mechanics of Solids and Fluids, funded by the French National Research Agency (2011-2013). Project coordinator: Christian Soize. This project involved a team of 11 co-PIs, including Johann Guilleminot. Total funded: 426,816 €.

Workshop Organization

1. Grant for workshop organization, funded by Université Paris-Est Marne-la-Vallée (2015). PI: Johann Guilleminot; Co-PI: Julien Yvonnet. Total funded: 1,000 €.

Teaching

Duke University (period: 2017-Present)

Courses Taught at the Undergraduate Level

- EGR 201 Mechanics of Solids (Sophomores/Juniors)
 - Fall 2018 (final enrollment: 36). Student evaluations (21/36 = 58% of the class surveyed): course 3.6/5, instructor 3.6/5.
- CEE 421L Matrix Structural Analysis (Juniors/Seniors)
 - Fall 2019 (final enrollment: 9). Student evaluations (7/9 = 78% of the class surveyed): course 4.6/5, instructor 4.4/5.

Courses Taught at the Graduate Level

- CEE 690 Uncertainty Quantification in Computational Science and Engineering (new course)
 - Spring 2018 (final enrollment: 9; 3 auditing students). Student evaluations (4/9 = 44% of the class surveyed): course 4.5/5, instructor 4.75/5.
 - Spring 2019 (final enrollment: 4; 2 auditing students). Student evaluations: not available.
 - Spring 2021 (final enrollment: 11; 3 auditing students). Student evaluations: TBA.
- CEE 690 Multiscale Methods for Heterogeneous Materials (new course)
 - Spring 2020 (final enrollment: 4; 1 auditing student). Student evaluations: not available.
- CEE 530/ME 524 Finite Element Method (service course)
 - Fall 2020 (final enrollment: 28; 2 auditing students). Student evaluations (18/28 = 64% of the class surveyed): course 4.3/5, instructor 4.7/5.
- MEMS 555.03 (aiM Program Special Module):
 - Spring 2021 (final enrollment: 11).

University of Transport and Communications, Vietnam (period: 2014)

Courses Taught at the Graduate Level

- Continuum Mechanics (2014).

Université Paris-Est Marne-la-Vallée, France (period: 2009-2017)**Courses Taught at the Undergraduate Level**

- Introduction to Linear Elasticity (2012-2017).

Courses Taught at the Graduate Level

- Continuum Mechanics (2012-2017).
- Fourier Analysis (2012-2016).
- Linear Algebra (2009-2016).
- Materials Science (2009-2011).
- Numerical Analysis (2011-2016).
- Stochastic Modeling of Random Media (2015-2017).
- The Finite Element Method (2009-2017).
- Vector Analysis (2009-2016).
- Vibrations (2009-2012).

Institut Mines Télécom Lille (period: 2005-2008)**Courses Taught at the Graduate Level**

- Mechanics of Composite Materials (2006-2008).

Student Supervision

Undergraduate Students**B.S. Advisees at Université Paris-Est Marne-la-Vallée, France (period: 2009-2017)**

2. B. Staber, Stochastic modeling of damaged materials, Université Paris-Est Marne-la-Vallée, February-June (2013).
1. T. Oumar, Dynamical behavior under seismic loading, Université Paris-Est Marne-la-Vallée, January-April (2012).

Master Students**M.S. Advisees at Duke University (period: 2017-Present)**

1. Xichen Tan (CEE, non-thesis project), Machine learning and uncertainty quantification for fracture modeling (2019-2020).
2. Siqi Mo (CEE, thesis project), Learning techniques for computational mechanics (2020-2021).

M.S. Advisees at Université Paris-Est Marne-la-Vallée, France (period: 2009-2017)

10. D. P. Bach, Computational homogenization of nonlinear microstructures, Université Paris-Est Marne-la-Vallée, March-June (2016).
9. B. Staber, Stochastic modeling in nonlinear mechanics, Université Paris-Est Marne-la-Vallée, March-June (2015).
8. B. Staber, Calibration of information-theoretic random field models for elasticity fields, Université Paris-Est Marne-la-Vallée, April-July (2014).
7. M. He, Fast algorithms for MD simulations applied to polymers, Université Paris-Est Marne-la-Vallée, March-June (2014).
6. M. He, Probabilistic modeling of fractal microstructures, Université Paris-Est Marne-la-Vallée, April-May (2013).
5. T. T. Tran, Nonlocal stochastic modeling for heterogeneous materials with non-separated scales, Université Paris-Est Marne-la-Vallée, March-June (2013).
4. T. T. Le, Stochastic modeling of random interphases, Université Paris-Est Marne-la-Vallée, March-June (2012).
3. T. T. Le, Computational homogenization for statistical inverse problems, Université Paris-Est Marne-la-Vallée, April-May (2011).
2. T. D. Hoang, Stochastic modeling of transient flows through random porous materials, Université Paris-Est Marne-la-Vallée, March-June (2011).
1. A. Benelfellah, Microporomechanics of fibrous media, University of Lille 1 - Science and Technology, March-June (2008).

Ph.D. Students**Advised Ph.D. Students**

4. P. Chen, Duke University, 01/2020-2025 (expected).
3. H. Zhang, Duke University, 09/2019-2024 (expected).
2. S. Chu, Duke University, 09/2018-2023 (expected).
1. B. Staber, Stochastic analysis, simulation and identification of hyperelastic constitutive equations, Université Paris-Est, 09/2015-06/2018. Last known position: AI Research Engineer at Safran, Paris, France.

Jointly Supervised Ph.D. Students¹

7. C. T. Nguyen, Multiscale modeling and processing of acoustical foams with polydisperse pores and controlled interconnections, jointly supervised with Dr. C. Perrot (in collaboration with Dr. V. Langlois and Dr. F. Detrez), Université Paris-Est, 12/2017-05/2021 (expected).
6. D.-A. Hun, Fracture modeling in clay materials under hydric shrinkage: numerical models, comparisons with experiments, and stochastic aspects, jointly supervised with Prof. J. Yvonnet (in collaboration with Dr. M. Bornert), Université Paris-Est, 10/2016-05/2020. Last known position: Postdoctoral Fellow, University of Liège, Liège, Belgium.

¹Students enrolled before Habilitation defense, having decided to defend at former institution after the move to Duke, or jointly advised through international collaborations.

5. V. H. Trinh, Effect of membrane content on the acoustical properties of three-dimensional monodisperse foams: experimental, numerical and semi-analytical approaches, jointly supervised with Dr. C. Perrot (in collaboration with Dr. V. Langlois), Université Paris-Est, 10/2015-07/2018. Last known position: Assistant Professor, Le Quy Don Technical University, Hanoi, Vietnam.
4. M. He, Microstructure and acoustic properties of fibrous media, jointly supervised with Dr. C. Perrot, Université Paris-Est, 09/2016-04/2018. Last known position: Teaching and Research Assistant, Wuhan University of Science and Technology, Wuhan, China.
3. V. P. Tran, Concurrent modeling of random media at several scales, jointly supervised with Prof. K. Sab and Dr. S. Brisard (Navier, ENPC), Université Paris-Est, 10/2013-10/2016. Last known position: Structural engineer at Egis, Montreuil, France.
2. T. T. Le, Stochastic modeling of random interphases for nanoreinforced polymers, jointly supervised with Prof. C. Soize, Université Paris-Est, 10/2012-09/2015. Last known position: Assistant Professor at Phenikaa university, Hanoi, Vietnam.
1. A. Noshadravan, Stochastic characterization, realization and upscaling of polycrystalline materials, jointly supervised with Prof. R. G. Ghanem, University of Southern California, 01/2010-09/2011. Last known position: Assistant Professor at Texas A & M University.

Postdoctoral Fellows

3. H. Wang, Uncertainty quantification in multi-model systems, Duke University, 2018-2020. Last known position: Assistant Professor at Utah State University.
2. N. Nemati, Homogenization of metamaterials, Duke University, 2018-2019. Last known position: postdoctoral fellow at Université Paris-Est (France).
1. I. Baydoun, Anisotropic transport and diffusion of elastic waves, in collaboration with the French Aeronautics and Space Research Center (ONERA) and the MSSMat laboratory (Ecole Centrale Paris), 2012-2013. Last known position: postdoctoral fellow at the University of Toronto (Canada).

Young Researchers

1. Luis Gomez, NIH Career Transition Award (K99), Duke University, 2019-2021. Last known position: Assistant Professor at Purdue University.

Professional Service

At Duke

- Committee member for preliminary exams:
 8. Peiyi Chen (Course-based, Chair, 04/05/2021).
 7. Ruoyu Zhong (Course-based, Member, 04/XX/2021).
 6. Hao Zhang (Chair, 01/25/2021).
 5. Hamad Almahmoud (Course-based, Member, 01/28/2021).
 4. Prajakta Prabhune (Course-based, Member, 12/10/2020).
 3. Tianchen Hu (Member, 04/02/2020).
 2. Shanshan Chu (Chair, 01/15/2020).
 1. Kangan Li (Member, 01/24/2018).

- Committee member for research proposal defenses:
 3. Nabil Atallah (Member, 10/25/2019).
 2. Rudy Geelen (Member, 01/05/2018).
 1. Nabil Abboud (Member, 10/25/2017).
- Committee member for Ph.D. final defenses:
 5. Clay Sanders (CEE, Member, 07/10/2020).
 4. Nabil Atallah (CEE, Member, 05/11/2020).
 3. Rudy Geelen (MEMS, Member, 03/02/2020).
 2. Nabil Abboud (CEE, Member, 10/28/2019).
 1. Zilong Zou (CEE, Member, 11/05/2018).
- Committee member for Master defenses:
 4. Xichen Tan (M.S., Chair, 04/01/2020).
 3. Kaichen Chu (M.S., Member, 04/01/2020).
 2. Debashis Wadadar (M.S., Member, 06/28/2019).
 1. Satyajith B. Boyana (M.Eng., Member, 12/03/2018).
- Committee member for the Utku award (2018, 2019).
- Co-organizer of the Melosh competition (since 2018).
- Member of CEE SAR (Scholarly Activity Report) evaluation committee (2018).
- CEE seminar coordinator (Spring 2021).
- Member of the admission committee for the Materials Science & Engineering program (Spring 2021).
- Member of the admission committee for the aiM program (Fall 2020-Present).

At Université Paris-Est Marne-la-Vallée

- Member of the steering committee at the Laboratory of Excellence (Labex) on Multi-Scale Modeling and Experimentation of Materials for Sustainable Construction (November 2015-June 2017).
- Co-chairman of the activities related to the UQ strategic axis at the Laboratory of Excellence (Labex) on Multi-Scale Modeling and Experimentation of Materials for Sustainable Construction (November 2015-June 2017).
- Chair of the M.S. program in Mechanics of Materials and Structures (September 2013-June 2017).
- Chairman of the monthly seminar for the Mechanics group at MSME laboratory (May 2013-June 2016).
- Member of the search committee for faculty positions at Université Paris-Est (Mechanics and Civil Engineering, November 2012-July 2016).
- Member of the graduation committee at ESIPÉ-MLV (major in Civil Engineering, September 2011-June 2017).
- Adviser of 10 to 15 undergraduate students at ESIPÉ-MLV (with a major in Mechanical or Civil Engineering, September 2009-June 2017).
- Committee member for the Ph.D. final defense of A. Noshadravan (University of Southern California, Member, 09/28/2011).

Service to the Scientific Community

- Judge for national student competitions:
 - EMI Probabilistic Methods Student Paper Competition (2020).
 - EMI Computational Mechanics Student Paper Competition (2019).
 - EMI Probabilistic Methods Student Paper Competition (2019).
- Member of the ASCE EMI Probabilistic Methods and Computational Mechanics Committees (since June 2017).
- Active Member-At-Large of the USACM Technical Thrust Area (TTA) committee on Uncertainty Quantification and Probabilistic Modeling (2020-2022).
- Professional membership: American Society of Mechanical Engineers (ASME), Engineering Mechanics Institute (EMI), Society for Industrial and Applied Mathematics (SIAM), U.S. Association for Computational Mechanics (USACM).
- Active reviewer for 47 journals, since 2008 (25 Q1, 14 Q2, 4 Q3, 4 recently created):
 1. Acta Biomaterialia
 2. Acta Materialia
 3. Acta Mechanica
 4. Advanced Modeling and Simulation in Engineering Sciences
 5. AIAA Journal
 6. Applied Mathematical Modelling
 7. ASCE-ASME Journal of Risk and Uncertainty in Engineering Systems Part B (Mech. Eng.)
 8. ASME Journal of Computing and Information Science in Engineering
 9. Composite Structures
 10. Composites Science and Technology
 11. Computational Materials Science
 12. Computational Mechanics
 13. Computer Methods in Applied Mechanics and Engineering (Outstanding Reviewer 2017)
 14. Computers and Structures
 15. Engineering with Computers
 16. Entropy
 17. Finite Elements in Analysis & Design
 18. Geomechanics for Energy and the Environment
 19. International Journal of Computational Methods
 20. International Journal of Fracture
 21. International Journal of Non-Linear Mechanics
 22. International Journal of Solids and Structures (Outstanding Reviewer 2018)
 23. International Journal for Numerical Methods in Engineering
 24. Journal of Applied Physics
 25. Journal of Elasticity

26. Journal of Engineering Mechanics
 27. Journal of the Acoustical Society of America
 28. Journal of the Mechanical Behavior of Biomedical Materials
 29. Journal of the Mechanics and Physics of Solids
 30. Journal of Intelligent Material Systems and Structures
 31. Materials
 32. Materials & Design
 33. Mathematical and Computational Applications
 34. Mathematics and Mechanics of Complex Systems
 35. Mathematical Problems in Engineering
 36. Matter
 37. Meccanica
 38. Mechanics of Materials
 39. Mechanics Research Communications
 40. Probabilistic Engineering Mechanics
 41. Proceedings of the Royal Society of London A
 42. SIAM Journal on Applied Mathematics
 43. SIAM Journal on Scientific Computing
 44. SIAM-ASA Journal on Uncertainty Quantification
 45. SIAM Multiscale Modeling & Simulation
 46. Structural and Multidisciplinary Optimization
 47. Transactions of Mathematics and Its Applications
- Reviewer for books and book chapters:
 1. Cambridge University Press.
 2. Elsevier S & T Book series.
 - Proposal reviewer for the:
 - French National Research Agency (since 2013).
 - Grant Agency of the Czech Republic (since 2013).
 - National Science Foundation (MOMS program, since 2017).
 - U.S. Department of Energy (ASCR program, since 2018).
 - Natural Sciences and Engineering Research Council of Canada (NSERC, since 2018).
 - German Research Foundation (Deutsche Forschungsgemeinschaft - DFG, since 2020).
 - Organization of mini-symposiums at national and international conferences:
 14. *Physics-Based Data-Driven Modeling and Uncertainty Quantification in Computational Materials Modeling*, 16th U.S. National Congress on Computational Mechanics (USNCCM16), Chicago, IL, USA, July 25-29 (2021).
 13. *Random and Fractal Media*, Society of Engineering Science (SES) 57th Annual Technical Meeting, Minneapolis, MN, USA, September 28-30 (2020).

12. *Physics-Based Data-Driven Modeling and Uncertainty Quantification in Computational Mechanics*, 14th World Congress in Computational Mechanics (WCCM14) and ECCOMAS Congress 2020, Paris, France, July 28 - August 1 (2020).
 11. *Stochastic Methods and Data-Driven Approaches in Computational Mechanics*, 15th U.S. National Congress on Computational Mechanics (USNCCM15), Austin, TX, USA, July 28 - August 1 (2019).
 10. *Stochastic Methods and Data-Driven Approaches in Computational Mechanics*, Engineering Mechanics Institute (EMI) Conference 2019, Pasadena, CA, USA, June 18-21 (2019).
 9. *Stochastic Modeling and Simulation for UQ in Computational Mechanics*, SIAM Conference on Uncertainty Quantification 2018, Orange County, CA, USA, April 16-19 (2018).
 8. *Stochastic Methods in Computational Mechanics of Random Materials*, Engineering Mechanics Institute (EMI) Conference 2018, Boston, USA, May 29 - June 1 (2018).
 7. *Stochastic Methods in Computational Mechanics of Random Materials*, 13th World Congress in Computational Mechanics (WCCM13), New-York, USA, July 22-27 (2018).
 6. *Stochastic Methods in Computational Mechanics of Random Materials*, 14th U.S. National Congress on Computational Mechanics (USNCCM14), Montreal, QC, Canada, July 17-20 (2017).
 5. *Uncertainty Quantification in Computational Mechanics*, 2016 EMI International Conference of ASCE, Metz, France, October 25-27 (2016).
 4. *Stochastic Modeling, Identification and Propagation of Uncertainties in Computational Mechanics of Materials*, 12th World Congress on Computational Mechanics (WCCM12), Seoul, Korea, July 24-29 (2016).
 3. *Stochastic Modeling and Identification of Uncertainties in Computational Mechanics*, ECCOMAS Congress 2016, Crete, Greece, June 5-10 (2016).
 2. *Characterization, simulation, and modeling of random heterogeneous materials*, Probabilistic Mechanics & Reliability Conference 2016 (PMC 2016), Nashville, USA, May 22-25 (2016).
 1. *Stochastic Methods in Computational Mechanics of Random Materials*, 13th U.S. National Congress on Computational Mechanics (USNCCM13), San Diego, USA, July 26-30 (2015).
- Organization of scientific events and thematic workshops:
 - Scientific workshop, Department of Mechanical Engineering, MSME laboratory, Université Paris-Est Marne-la-Vallée, Champs-sur-Marne, France, April 2 (2015).
 - Workshop on Modeling and Multiscale Simulation of Nanocomposites (sponsored by the Research Group on Polymer Modeling and Université Paris-Est), Université Paris-Est Marne-la-Vallée, Champs-sur-Marne, France, June 15 (2015).
 - Organization of thematic school: Uncertainty Quantification and Stochastic Modelling of Materials (UQ2SM), funded and hosted by the Isaac Newton Institute for Mathematical Sciences, Cambridge, United Kingdom (2023). In collaboration with Prof. A. Mihai, Cardiff University, and Prof. A. Goriely, Oxford University.
 - Participation to scientific committees:
 - Member of the Scientific Committee, 3rd International Conference on Uncertainty Quantification in Computational Sciences and Engineering (UNCECOMP 2019), Rhodes Island, Greece, June 24-26 (2019).
 - Member of the Local Organization Committee, ECCOMAS Thematic Conference on Computational Modeling of Complex Materials Across the Scales (CMCS), Paris, France, November 7-9 (2017).

- Member of the Scientific Committee, 2nd International Conference on Uncertainty Quantification in Computational Sciences and Engineering (UNCECOMP 2017), Rhodes Island, Greece, June 15-17 (2017).
- Member of the International Scientific Committee, 2016 EMI International Conference, Metz, France, October 25-27 (2016).

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