Xu Guo

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Xu Guo, born in 1971, obtained his Ph.D. from Dalian University of Technology (DUT) under the supervision of Prof. Gengdong Cheng in 1998. After two years Postdoctoral study in Prof. Yamazaki's Laboratory in Kanazawa University (Japan), he joined DUT in 2000. He is now the Dean of the Department of Engineering Mechanics and holds the Chang Jiang Distinguished Professorship. He is also the director of International Research Center for Computational Mechanics from Chinese side, and the leader of a nationally recognized research team on computational mechanics under the long-term support from the National Natural Science Foundation of China (NSFC). He has published more than 180 journal papers, including 31 papers in CMAME, 10 papers in IJNME, 11 papers in JMPS,12 papers in IJSS, respectively.

Editorial and academic services

- President of *the Chinese Association of Computational Mechanics*
- Vice president of *the Chinese Society of Theoretical and Applied Mechanics*
- Member of the editorial board of *Computer Methods in Applied Mechanics and Engineering*
- Associate Editor of *ASME-Journal of Mechanical Design*
- Associate Editor of *Theoretical & Applied Mechanics Letters*
- Associate Editor of *Chinese Journal of Computational Mechanics*
- Review Editor of *Structural and Multidisciplinary Optimization*
- Editor of *Extreme Mechanics Letters*
- Editor of *Acta Mechanica Sinica*
- Editor of *Acta Mechanica Solida Sinica*
- Editor of *Science China Materials*
- Editor of *Applied Mathematics and Mechanics (Chinese Edition)*
- Member of the Executive Committee of *the International Society for Structural and Multidisciplinary Optimization*
- Chairman of *the 13th World Congress on Structural and Multidisciplinary*

Optimization

- General Sectary of *the Asian Association for Structural and Multidisciplinary Optimization*
- Director of the Committee for *Young Investigators of the Chinese Society of Theoretical and Applied mechanics*
- Vice Director the Committee for *Micro-nanomechanics of the Chinese Society of Theoretical and Applied mechanics*
- Member of the Executive Committee of *the Asian Association for Structural and Multidisciplinary Optimization*
- Member of the International Paper's Committee of *the 9th World Congress on Structural and Multidisciplinary Optimization*
- Member of the Executive Committee of *the International Chinese Association for Computational Mechanics*

Invited lectures (selected)

- Semi-Plenary Lecture in *the 12th World Congress on Computational Mechanics*, Seoul, Korea, 2016
- Semi-Plenary Lecture in EUROGEN 2021 (ECCOMAS Thematic Conference), Athens, Greece, 2021
- Plenary Lecture in *the International Conference on Modeling in Mechanics and Materials*, San Francisco, USA, 2018
- Semi-Plenary Lecture in *the 2nd International Conference on Computational Engineering and Science for Safety and Environmental Problems*, Chengdu, China, 2017
- Plenary Lecture in *the 4th International Conference on Computational Design in Engineering,* Changwon, Korea, 2018
- General Lecture in *the Chinese Conference on Computational Mechanics*-2010, Mianyang, China, 2010
- General Lecture in *the 5th China-Japan-Korea Joint Symposium on Optimization of Structural and Mechanical Systems*, Jeju Island, Korea, *2008*

Academic awards (selected)

- Xu Zhilun Mechanics Award (*from Xu Zhilun Education Foundation*), 2021
- Outstanding Talent of Liaoning Province (*from Liaoning Provincial Government*), 2021
- National Innovation Award (*from China Government*), 2020
- Qian Lingxi Award for Achievement in Computational Mechanics (*from Qian Lingxi Mechanics Award Foundation*), 2020
- National Natural Science Award (*from China government*), 2019
- Natural Science Award (*from the Chinese Ministry of Education*), 2019
- China Mechanics Natural Science Award (*from the Chinese Society of Theoretical and Applied Mechanics*), 2018

- ASSMO Award (*from the Asian Society of Structural and Multidisciplinary Optimization*), 2018
- ICACM Award (*from the International Chinese Association for Computational Mechanics*), 2018
- Changjiang Professorship (*from the Chinese Ministry of Education*), 2012
- National Award for Youth in Science and Technology (*from China Government*), 2011
- CADLM Intelligent Optimal Design Prize (*from the Association for Simulation and Multidisciplinary Design Optimization*), 2010
- Outstanding Young Investigator Award (*from the Natural Science Foundation of China*), 2009
- Award for Youth in Science and Technology (*from the Chinese Society of Theoretical and Applied Mechanics*), 2009
- National Natural Science Award (*from China Government*), 2006
- Natural Science Award (*from Liaoning Provincial Government*), 2005
- Natural Science Award (*from the Chinese Ministry of Education*), 2003

Representative publications (* corresponding author)

1. Zhu Y. C., Luo J., **Guo X.***, Xiang Y., J. C. Stephen Role of grain boundaries under long-time radiation. ***Physical Review Letters*** 2018, 120(22): 222501.
2. Jiang X. D., Liu C.*, Du Z. L., Huo W. D., Zhang X. Y., Liu F., **Guo X.*** A unified framework for explicit layout/topology optimization of thin-walled structures based on Moving Morphable Components (MMC) method and adaptive ground structure approach. ***Computer Methods in Applied Mechanics and Engineering*** 2022, in press.
3. Ma C., Xue D. C., Li S. S., Zhou Z. C. Zhu Y. C.*, **Guo X.*** Compliance minimisation of smoothly varying multiscale structures using asymptotic analysis and machine learning. ***Computer Methods in Applied Mechanics and Engineering*** 2022, 395: 114861.
4. Zhang W. S., Yan X. Y., Meng Y., Zhang C. L., Youn S. K.*, **Guo X.*** Flexoelectric nanostructure design using explicit topology optimization. ***Computer Methods in Applied Mechanics and Engineering*** 2022, 394: 114943.
5. Liu D. P., Yang H., Elkhodary E. I., Tang S.*, Liu W. K.*, **Guo X.*** Mechanistically informed data-driven modeling of cyclic plasticity via artificial neural networks. ***Computer Methods in Applied Mechanics and Engineering*** 2022, 393: 114766.
6. Li S. S., Zhu Y. C.*, **Guo X.*** Optimisation of spatially varying orthotropic porous structures based on conformal mapping. ***Computer Methods in Applied Mechanics and Engineering*** 2022, 391: 114589.
7. Zhang G., Guo T. F., Elkhodary E. I., Tang S.*, **Guo X.*** Mixed Graph-FEM phase field modeling of fracture in plates and shells with nonlinearly elastic solids. ***Computer Methods in Applied Mechanics and Engineering*** 2022, 389: 114282.
8. Tang S., Yang H., Qiu H., Fleming M., Liu W. K.*, **Guo X.*** MAP123-EPF: A mechanistic-based data-driven approach for numerical elastoplastic modeling at

finite strain. ***Computer Methods in Applied Mechanics and Engineering*** 2021, 373: 113484.

9. Tang S., Li Y., Qiu H., Yang H., Saha S., Mojumder S., Liu W. K.*, **Guo X.*** MAP123-EP: A mechanistic-based data-driven approach for numerical elastoplastic analysis. ***Computer Methods in Applied Mechanics and Engineering*** 2021, 364: 112955.
10. Liu C., Du Z. L.*, Zhu Y. C., Zhang W. S.,Zhang X. Y., **Guo X.*** Optimal design of shell-graded-infill structures by a hybrid MMC-MMV approach. ***Computer Methods in Applied Mechanics and Engineering*** 2020, 369: 113187.
11. Xue D. C., Zhu Y. C.*, **Guo X.*** Generation of smoothly-varying infill configurations from a continuous menu of cell patterns and the asymptotic analysis of its mechanical behaviour. ***Computer Methods in Applied Mechanics and Engineering*** 2020, 366: 113037.
12. Zhang W. S., Jiang S., Liu C., Li D. D., Kang P., Youn S. K.*, **Guo X.*** Stress-related topology optimization of shell structures using IGA/TSA-based moving morphable void (MMV) approach. ***Computer Methods in Applied Mechanics and Engineering*** 2020, 366: 113036.
13. Zhang W. S., Li D. D., Kang P., **Guo X.***, Youn S. K.* Explicit topology optimization using IGA-based moving morphable void (MMV) approach. ***Computer Methods in Applied Mechanics and Engineering*** 2020, 360: 112685.
14. Zhang G., Guo T. F., **Guo X.***, Tang S.*, Fleming M., Liu W. K. Fracture in tension–compression-asymmetry solids via phase field modeling. ***Computer Methods in Applied Mechanics and Engineering*** 2019, 357: 112573.
15. Tang S., Zhang G., Yang H., Li Y.*, Liu W. K.*, **Guo X.*** MAP123: A data-driven approach to use 1D data for 3D nonlinear elastic materials modeling. ***Computer Methods in Applied Mechanics and Engineering*** 2019, 357: 112587.
16. Tang S., Zhang G., Guo T. F., **Guo X.***, Liu W. K.* Phase field modeling of fracture in nonlinearly elastic solids via energy decomposition. ***Computer Methods in Applied Mechanics and Engineering*** 2019, 347: 477-494.
17. Xue R. Y., Liu C., Zhang W. S., Zhu Y. C., Tang S., Du Z. L.*, **Guo X.*** Explicit structural topology optimization under finite deformation via moving morphable void (MMV) approach. ***Computer Methods in Applied Mechanics and Engineering*** 2019, 344: 798-818.
18. Zhang W. S., Li D., Zhou J. H., Du Z. L., Li B. J., **Guo X.*** A moving morphable void (MMV)-based explicit approach for topology optimization considering stress constraints. ***Computer Methods in Applied Mechanics and Engineering*** 2018, 334: 381-413.
19. Zhang W. S., Liu Y., Wei P., Zhu Y. C. and **Guo X.*** Explicit control of structural complexity in topology optimization. ***Computer Methods in Applied Mechanics and Engineering*** 2017, 324: 149-169.
20. **Guo X.***, Zhou J. H., Zhang W. S., Du Z. L., Liu C., Liu Y. Self-supporting structure design in additive manufacturing through explicit topology optimization. ***Computer Methods in Applied Mechanics and Engineering*** 2017, 323: 27-63.
21. Zhang W. S., Chen J. S., Zhu X. F., Zhou J. H., Xue D. C., Lei X., **Guo X.*** Explicit

three dimensional topology optimization via Moving Morphable Void (MMV) approach. ***Computer Methods in Applied Mechanics and Engineering*** 2017, 322: 590-614.

22. Zhang W. S., Li D., Zhang J., **Guo X.*** Minimum length scale control in structural topology optimization based on the Moving Morphable Components (MMC) approach. ***Computer Methods in Applied Mechanics and Engineering*** 2016, 311: 327-355.
23. **Guo X.***, Zhang W. S., Zhang J., Yuan J. Explicit structural topology optimization based on moving morphable components (MMC) with curved skeletons. ***Computer Methods in Applied Mechanics and Engineering*** 2016, 310: 711-748.
24. Zhang W. S., Zhong W. L., **Guo X.*** Explicit layout control in optimal design of structural systems with multiple embedding components. ***Computer Methods in Applied Mechanics and Engineering*** 2015, 290: 290-313.
25. **Guo X.***, Zhao X. F., Zhang W. S., Yan J., Sun G. M. Multi-scale robust design and optimization considering load uncertainties. ***Computer Methods in Applied Mechanics and Engineering*** 2015, 283: 994-1009.
26. **Guo X.***, Zhang W. S., Zhong W. L. Explicit feature control in structural topology optimization via level set method. ***Computer Methods in Applied Mechanics and Engineering*** 2014, 272: 354-378.
27. **Guo X.***, Zhang W. S., Zhong W. L. Stress-related topology optimization of continuum structures involving multi-phase materials. ***Computer Methods in Applied Mechanics and Engineering*** 2014, 268: 632-655.
28. Wang X. Y., **Guo X.***, Su Z. A quasi-continuum model for human erythrocyte membrane based on the higher order Cauchy-Born rule. ***Computer Methods in Applied Mechanics and Engineering*** 2014, 268: 284-298.
29. Zhang W. S., Zhong W. L., **Guo X.*** An explicit length scale control approach in SIMP-based topology optimization. ***Computer Methods in Applied Mechanics and Engineering*** 2014, 282: 71-86.
30. **Guo X.***, Zhang W. S., Zhang L. Robust structural topology optimization considering boundary uncertainties. ***Computer Methods in Applied Mechanics and Engineering*** 2013, 253: 356-368.
31. **Guo X.***, Zhang W. S., Wang M. Y., Wei P. Stress-related topology optimization via level set approach. ***Computer Methods in Applied Mechanics and Engineering*** 2011, 200(47-48): 3439-3452.
32. **Guo X.***, Bai W., Zhang W. S., Gao X. X. Confidence structural robust design and optimization under stiffness and load uncertainties. ***Computer Methods in Applied Mechanics and Engineering*** 2009, 198(41-44): 3378-3399.
33. Li J. L., Zhang Y. W.*, Du Z. L., Liu C., Zhang W. S., Guo X. L., **Guo X.*** A moving morphable component-based topology optimization approach considering transient structural dynamic responses. ***International Journal for Numerical Methods in Engineering*** 2022, 123(3): 705-728.
34. Zhang W. S., Jiang Q. Q., Feng W. Z., Youn S. K.*, **Guo X.*** Explicit structural topology optimization using boundary element method-based moving morphable void approach. ***International Journal for Numerical Methods in Engineering***

2021, 122(21): 6155-6179.
35. Zhang W. S., Xiao Z., Liu C., Mei Y., Youn S. K., **Guo X.*** A scaled boundary finite element based explicit topology optimization approach for three-dimensional structures. ***International Journal for Numerical Methods in Engineering*** 2020, 121(21): 4878-4900.
36. Du J. M., Du Z. L.*, Wei Y. H., Zhang W. S., **Guo X.*** Exact response bound analysis of truss structures via linear mixed 0-1 programming and sensitivity bounding technique. ***International Journal for Numerical Methods in Engineering*** 2018, 116(1): 21-42.
37. Zhang W. S., Song J. F., Zhou J. H., Du Z. L., Zhu Y. C., Sun Z., **Guo X.*** Topology optimization with multiple materials via moving morphable component (MMC) method. ***International Journal for Numerical Methods in Engineering*** 2018, 113(11): 1653-1675.
38. Zhang W. S., **Guo X.***, Wang M. Y., Wei P. Optimal topology design of continuum structures with stress concentration alleviation via level set method. ***International Journal for Numerical Methods in Engineering*** 2013, 93(9): 942-959.
39. **Guo X.***, Du J. M., Gao X. X. Confidence structural robust optimization by non-linear semidefinite programming-based single-level formulation. ***International Journal for Numerical Methods in Engineering*** 2011, 86(8): 953-974.
40. Kanno Y.*, Guo X. A mixed integer programming for robust truss topology optimization with stress constraints. ***International Journal for Numerical Methods in Engineering*** 2010, 83(13): 1675-1699.
41. **Guo X.***, Bai W., Zhang W. S. Extreme structural response analysis of truss structures under material uncertainty via linear mixed 0-1 progrannming. ***International Journal for Numerical Methods in Engineering*** 2008, 76(3): 253-277.
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43. Jin F.*, Tang Q. Q., **Guo X.**, Gao H. J. A generalized Maugis-Dugdale solution for adhesion of power-law graded elastic materials. ***Journal of the Mechanics and Physics of Solids*** 2021, 154: 104509.
44. Du Z. L., Zhang G., Guo T. F., Tang S.*, **Guo X.*** Tension-compression asymmetry at finite strains: A theoretical model and exact solutions. ***Journal of the Mechanics and Physics of Solids*** 2020, 143: 104084.
45. **Guo X.***, Ma B. B., Zhu Y. C.* A magnification-based multi-asperity (MBMA) model of rough contact without adhesion. ***Journal of the Mechanics and Physics of Solids*** 2019, 133: 103724.
46. Zhu Y. C., Li S. S., Du Z. L., Liu C., **Guo X.***, Zhang W.S.* A novel asymptotic-analysis-based homogenisation approach towards fast design of infill graded microstructures. ***Journal of the Mechanics and Physics of Solids*** 2019, 124: 612-633.
47. Zhu Y. C., Wei Y. H., **Guo X.*** Gurtin-Murdoch surface elasticity theory revisit: An orbital-free density functional theory perspective. ***Journal of the Mechanics and***

Physics of Solids 2017, 109: 178-197.

48. Zhu Y. C., Wang J.*, Xiang Y.*, **Guo X.*** A three-scale homogenisation approach to the prediction of long-time absorption of radiation induced interstitials by nanovoids at interfaces. ***Journal of the Mechanics and Physics of Solids*** 2017, 105: 1-20.
49. Du Z. L., **Guo X.*** Variational principles and the related bounding theorems for bi-modulus materials. ***Journal of the Mechanics and Physics of Solids*** 2014, 73: 183-211.
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51. Jin F., **Guo X.***, Gao H. J. Adhesive contact on power-law graded elastic solids: The JKR-DMT transition using a double-Hertz model. ***Journal of the Mechanics and Physics of Solids*** 2013, 61(12): 2473-2492.
52. **Guo X.***, Zhang T. A study on the bending stiffness of single-walled carbon nanotubes and related issues. ***Journal of the Mechanics and Physics of Solids*** 2010, 58(3): 428-443.
53. Zhang H. W.*, Wang J. B., **Guo X.*** Predicting the elastic properties of single-walled carbon nanotubes. ***Journal of the Mechanics and Physics of Solids*** 2005, 53(9): 1929-1950.
54. Xiang Q., Yang H., K. I. Elkhodary, Qiu H., Tang S.*, **Guo X.*** A multiscale, data-driven approach to identifying thermo-mechanically coupled laws—bottom-up with artificial neural networks. ***Computational Mechanics*** 2022. https://doi.org/10.1007/s00466-022-02161-2
55. Qiu H., Yang H., K. I. Elkhodary, Tang S., **Guo X.***, Huang J. H. A data-driven approach for modeling tension–compression asymmetric material behavior: numerical simulation and experiment. ***Computational Mechanics*** 2022, 69: 299-313.
56. Mei Y., Deng J. W., **Guo X.**, S. Goenezen, S. Avril.* Introducing regularization into the virtual fields method (VFM) to identify nonhomogeneous elastic property distributions. ***Computational Mechanics*** 2021, 67: 1581-1599.
57. Liu C., Du Z. L.*, Zhang W. S., Zhang X. Y., Mei Y., **Guo X.*** Design of optimized architected structures with exact size and connectivity via an enhanced multidomain topology optimization strategy. ***Computational Mechanics*** 2021, 67: 743-762.
58. Yang H., **Guo X.***, Tang S.*, Liu W.K. Derivation of heterogeneous material laws via data-driven principal component expansions. ***Computational Mechanics*** 2019, 64: 365-379.
59. Li H. Y., Orion L. K., Gao J. Y., Yu C., Nie Y. H., Zhang L., Mahsa T., Tang S., **Guo X.**, Li G. Tang S. Q., Cheng G. D., Liu W.K.* Clustering discretization methods for generation of material performance databases in machine learning and design optimization. ***Computational Mechanics*** 2019, 64: 281-305.
60. Du Z. L., Zhang W. S., Zhang Y. P., Xue R. Y., **Guo X.*** Structural topology optimization involving bi-modulus materials with asymmetric properties in tension

and compression. ***Computational Mechanics*** 2019, 63: 335-363.

61. Zhang W. S., Li D., Yuan J., Song J. F., **Guo X.*** A new three-dimensional topology optimization method based on moving morphable components (MMCs). ***Computational Mechanics*** 2017, 59: 647–665.
62. Yan J., **Guo X.***, Cheng G. D. Multi-scale concurrent material and structural design under mechanical and thermal loads. ***Computational Mechanics*** 2016, 57: 437–446.
63. Zhou Z. C., Zhu Y. C.*, Luo J., Yang X., **Guo X.*** Characterisation of dislocation patterning behaviour with a continuum dislocation dynamics model on two parallel slip planes equipped with a deep neural network resolving local microstructures. ***International Journal of Solids and Structures*** 2020, 198: 57-71.
64. Jin F., Wan Q., **Guo X.*** A double-Westergaard model for adhesive contact of a wavy surface. ***International Journal of Solids and Structures*** 2016, 102: 66-76.
65. Du Z. L., Zhang Y. P., Zhang W. S., **Guo X.*** A new computational framework for mechanical with different mechanical responses in tension and compression and its applications. ***International Journal of Solids and Structures*** 2016, 100: 54-73.
66. Jin F., Zhang W., Wan Q. and **Guo X.*** Adhesive contact of a power-law graded elastic half-space with a randomly rough rigid surface. ***International Journal of Solids and Structures*** 2016, 81: 244-249.
67. Jin F., Zhang W., Zhang S. L., **Guo X.*** Adhesion between elastic cylinders based on the double-Hertz model. ***International Journal of Solids and Structures*** 2014, 51(14): 2706-2712.
68. Jin F., **Guo X.*** Mechanics of axisymmetric adhesive contact of rough surfaces involving power-law graded materials. ***International Journal of Solids and Structures*** 2013, 50(20-21): 3375-3386.
69. Jin F., **Guo X.*** Mode-mixity-dependent adhesion of power-law graded elastic solids under normal load and substrate stretch-induced mismatch strain. ***International Journal of Solids and Structures*** 2012, 49(17): 2349-2357.
70. **Guo X.***, Jin F., Gao H. J. Mechanics of non-slipping adhesive contact on a power-law graded elastic half-space. ***International Journal of Solids and Structures*** 2011, 48(18): 2565-2575.
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75. Huo W. D., Liu C.*, Du Z. L., Liu Z. Y., **Guo X.*** Topology optimization on complex surfaces based on the moving morphable components (MMCs) method and computational conformal mapping (CCM). ***Journal of Applied Mechanics-Transactions of the ASME*** 2022, 89(5): 051008.
76. Jin F.*,Tang C. Y., **Guo X.**, Bai L. T. Roof deformation and collapse of stamps with isolated grooves: a contact mechanics approach. ***Journal of Applied Mechanics-Transactions of the ASME*** 2022, 89(3): 031007.
77. **Guo X.***, Du Z. L., Liu C., Tang S. A new uncertainty analysis-based framework for data-driven computational mechanics. ***Journal of Applied Mechanics-Transactions of the ASME*** 2021, 88(11): 111003.
78. Mei Y., Du Z. L., Zhao D. M., Zhang W. S., Liu C.*, **Guo X.*** Moving morphable inclusion approach: an explicit framework to solve inverse problem in elasticity. ***Journal of Applied Mechanics-Transactions of the ASME*** 2021, 88(4): 041001.
79. Yang H., Qiu H., Xiang Q., Tang S.*, **Guo X.*** Exploring elastoplastic constitutive law of microstructured materials through artificial neural network—A mechanistic-based data-driven approach. ***Journal of Applied Mechanics-Transactions of the ASME*** 2020, 87(9): 091005.
80. Lei X., Liu C.*, Du Z. L., Zhang W. S., **Guo X.*** Machine learning-driven real-time topology optimization under moving morphable component-based framework. ***Journal of Applied Mechanics-Transactions of the ASME*** 2019, 86(1): 011004.
81. Jin F.*, **Guo X.**, Wan Q. Plane contact and adhesion of two elastic solids with an interface groove. ***Journal of Applied Mechanics-Transactions of the ASME*** 2018, 85(4): 041002.
82. Liu C., Du Z. L., Zhang W. S., Zhu Y. C., **Guo X.*** Additive manufacturing-oriented design of graded lattice structures through explicit topology optimization. ***Journal of Applied Mechanics-Transactions of the ASME*** 2017, 84(8): 081008.
83. Zhang W. S., Yang W. Y., Zhou J. H., Li D., **Guo X.*** Structural topology optimization through explicit boundary evolution. ***Journal of Applied Mechanics-Transactions of the ASME*** 2017, 84(1): 011011.
84. Jin F.*, **Guo X.,** Wan Q. Revisiting the maugis-dugdale adhesion model of elastic periodic wavy surfaces. ***Journal of Applied Mechanics-Transactions of the ASME*** 2016, 83(10): 101007.
85. Zhang W. S., Zhang J., **Guo X.*** Lagrangian description based topology optimization-a revival of shape optimization. ***Journal of Applied Mechanics-Transactions of the ASME*** 2016, 83(4): 041010.
86. Jin F., Wan Q., **Guo X.*** Plane contact and partial slip behaviors of elastic layers with randomly rough surfaces. ***Journal of Applied Mechanics-Transactions of the ASME*** 2015, 82(9): 091006.
87. **Guo X.***, Zhang W. S., Zhong W. L. Doing Topology optimization explicitly and geometrically-a new moving morphable components based framework. ***Journal of Applied Mechanics-Transactions of the ASME*** 2014, 81(8): 081009.
88. Zhang W., Jin F., Zhang S. L., **Guo X.*** Adhesive contact on randomly rough surfaces based on the double-Hertz model. ***Journal of Applied Mechanics-Transactions of the ASME*** 2014, 81(5): 051008.

89. Jin F., **Guo X.***, Zhang W. A unified treatment of axisymmetric adhesive contact on a power-law graded elastic half-space. ***Journal of Applied Mechanics-Transactions of the ASME*** 2013, 80(6): 061024.
90. Xue D. C., Zhu Y. C.*, Li S. S., LiuC., Zhang W. S., **Guo X.*** On speeding up an asymptotic-analysis-based homogenisation scheme for designing gradient porous structured materials using a zoning strategy. ***Structural and Multidisciplinary Optimization*** 2020, 62(2): 457-473.
91. Liu C., Zhu Y. C., Sun Z., Li D. D., Du Z. L.*, Zhang W. S., **Guo X.*** An efficient moving morphable component (MMC)-based approach for multi-resolution topology optimization. ***Structural and Multidisciplinary Optimization*** 2018, 58(6): 2455-2479.
92. Zhang W. S., Zhou J. H., Zhu Y. C., **Guo X.*** Structural complexity control in topology optimization via moving morphable component (MMC) approach. ***Structural and Multidisciplinary Optimization*** 2017, 56(3): 535-552.
93. Zhang W. S., Yuan J., Zhang J., **Guo X.*** A new topology optimization approach based on Moving Morphable Components (MMC) and the ersatz material model. ***Structural and Multidisciplinary Optimization*** 2016, 53(6): 1243-1260.
94. Du Z. L., **Guo X.*** Symmetry analysis for structural optimization problems involving reliability measure and bi-modulus materials. ***Structural and Multidisciplinary Optimization*** 2016, 53(5): 973-984.
95. Ni C. H., Yan J.*, Cheng G. D., **Guo X.** Integrated size and topology optimization of skeletal structures with exact frequency constraints. ***Structural and Multidisciplinary Optimization*** 2014, 50(1): 113-128.
96. **Guo X.***, Du Z. L., Cheng G. D. A confirmation of a conjecture on the existence of symmetric optimal solution under multiple loads. ***Structural and Multidisciplinary Optimization*** 2014, 50(4): 659-661.
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100. **Guo X.***, Cheng G. D., Yamazaki K. A note on stress-constrained truss topology optimization. ***Structural and Multidisciplinary Optimization*** 2004, 27 (1): 136-137.
101. **Guo X.***, Cheng G. D.*, Yamazaki K.* A new approach for the solution of singular optima in truss topology optimization with stress and local buckling constraints. ***Structural and Multidisciplinary Optimization*** 2001, 22(5): 364-373.
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104. Cheng G. D.*, **Guo X.** ε-relaxed approach in structural topology optimization. ***Structural and Multidisciplinary Optimization*** 1997, 13(4): 258-266.

Academic achievements and activities

Xu Guo has been working in the field of computational mechanics for more than 25 years. His research areas include structural and multidisciplinary optimization, computational mechanics considering uncertainties, variational principles for advanced materials/structures and data-driven computational mechanics. He has published more than 180 journal papers (including 31 papers in CMAME, 10 papers in IJNME, 11 papers in JMPS,12 papers in IJSS, respectively). His main academic achievements include:

(1) Developed the so-called $\epsilon-$relaxed approach for the solution of singular topology optimization problems (with Prof. Gengdong Cheng) which has been recognized a fundamental contribution to structural topology optimization and has been cited and applied intensively since its invention (SMO, 1997, 521 google citations).

(2) Established the so-called Moving Morphable Component (MMC) based framework for topology optimization, which has been cited intensively and extended in various ways to solve different kinds of topology optimization problems (JAM, 2014; CMAME, 2016; SMO, 2016, totally 1133 (587+329+217) google citations of these three papers).

(3) Developed a series of variational principles and the corresponding computational framework for numerical analysis of structures composed by materials with non-smooth behavior, i.e., tension-compression asymmetries (JMPS, 2014, 2020; IJSS, 2016).

(4) Proposed a mechanistic-based data-driven approach for numerical modelling of 3D nonlinear elastic/ elastoplastic problems using 1D experiment data (CMAME, 2019, 2020, 2021, 2022).

(5) Established a series of Semi-Definite Programming (SDP) based formulations that can solve the problem of finding the solutions of structural robust optimization problems in a confidence way, which is believed to be a very challenging issue in the corresponding field (CMAME, 2009, 2013; IJNME, 2011). Besides, some theoretical global optimal solutions for finding the extreme structural responses under interval uncertainties were also obtained in his work for the first time (IJNME, 2008, 2010, 2018). These solutions can serve as benchmarks for testing the accuracy of numerical methods and have long-term academic values.

Xu Guo is very active in promoting the prosperity of the computational mechanics society. He is now serving as the President of the Chinese Association of Computational Mechanics, which has more than 600 IACM members; the member of the Executive

Committee of Asian Society for Structural and Multidisciplinary Optimization (ASSMO), and the vice president of the Chinese Society of Theoretical and Applied Mechanics.

Xu Guo is the organizer and committee member of a number of academic events related to computational mechanics. In particular, he served as the co-chair of the 13th World Congress of Structural and Multidisciplinary Optimization (WCSMO) which has more 600 participants.

Xu Guo is also active in the editorial work of computational mechanics related journals. He is one of the members of the editorial advisory board of Computer Methods in Applied Mechanics and Engineering and the Associate Editors of ASME-Journal of Mechanical Design and Chinese Journal of Computational Mechanics.

Xu Guo is the recipient of numerous academic awards and honors, including the ASSMO Award, International Chinese Association for Computational Mechanics (ICACM) Award, National Award for Natural Sciences, etc. He is also the Plenary/Semi-Plenary speakers in numerous prestigious international conferences/workshops/symposiums, including the 2016 World Congress on Computational Mechanics (WCCM) and EUROGEN 2021, etc.