Curriculum Vitae

Guofeng Zhang

1 Contact information

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2 Education

- Ph.D., 2005.08, Applied Mathematics, University of Alberta, Edmonton, Canada (Supervisor: Professor Tongwen Chen)
- M.Sc., 2000.08, Applied Mathematics, Northeastern University, Shenyang, China
- B.Sc., 1998.07, Applied Mathematics, Northeastern University, Shenyang, China

3 Career history

- 2025.07 - present, Professor, Hong Kong Polytechnic University
- 2017.07 - 2025.06, Associate Professor, Hong Kong Polytechnic University
- 2011.12 - 2017.06, Assistant Professor, Hong Kong Polytechnic University
- 2010.04 - 2011.12, Research Fellow, Australian National University
- 2009.08 - 2011.09, University Postdoctral Fellow, Hong Kong Polytechnic University (with no-pay leave from 2010.04 to 2011.09)
- 2008.07 - 2009.06, Visiting Scholar, University of Western Sydney
- 2007.09 - 2011.12, Associate Professor, University of Electronic Science and Technology of China

- 2006.09 - 2007.08, Faculty Member, Hangzhou Dianzi University
- 2005.09 - 2006.08, Postdoctoral Fellow, University of Windsor

4 Teaching

4.1 Subjects taught at PolyU

- 2026.01 - 2026.05, AMA1751: Linear Algebra
- 2026.01 - 2026.05, AMA3724: Further Mathematical Methods
- 2025.01 - 2025.05, AMA2112: Mathematics II
- 2025.01 - 2025.05, AMA3724: Further Mathematical Methods
- 2024.09-2024.12, AMA567: Quantum Computing for Date Science (postgraduate level)
- 2024.01 - 2024.05, AMA2112: Mathematics II
- 2024.01 - 2024.05, AMA1131: Calculus
- 2023.09-2023.12, AMA567: Quantum Computing for Date Science (postgraduate level)
- 2023.05-2023.08, AMA2131: Mathematics for Engineers
- 2022.09 - 2022.12, AMA2112: Mathematics II
- 2022.09-2022.12, AMA1130 & 1131: Calculus
- 2022.01-2022.05, AMA567: Quantum Computing for Date Science (postgraduate level)
- 2022.01-2022.05, AMA1130: Calculus for Engineers
- 2021.09 - 2021.12, AMA2112: Mathematics II
- 2021.01-2021.05, AMA1130: Calculus for Engineers
- 2020.09 - 2020.12, AMA2112: Mathematics II
- 2020.01-2020.05, AMA1130: Calculus for Engineers
- 2019.09-2019.12, AMA523: Optimal Control with Management Science Applications (postgraduate level)
- 2019.09-2019.12, AMA1100: Basic Mathematics I: Calculus and Probability & Statistics

- 2019.01-2019.05, AMA1130: Calculus for Engineers
- 2018.09-2018.12, AMA1100: Basic Mathematics I: Calculus and Probability & Statistics
- 2017.09-2017.12, AMA1100: Basic Mathematics
- 2017.09-2017.12, AMA1008: Calculus and Linear Algebra
- 2016.09-2016.12, AMA523: Optimal Control with Management Science Applications (postgraduate level)
- 2016.09-2016.12, AMA1100: Basic Mathematics
- 2016.01 - 2016.05, AMA2112: Mathematics II
- 2016.01 - 2016.05, AMA202: Mathematics II
- 2016.01 - 2016.05, AMA251: Further Calculus
- 2015.09 - 2015.12, AMA1100: Basic Mathematics
- 2015.09 - 2015.12, AMA251: Further Calculus (guided study)
- 2015.01 - 2015.05, AMA296: Mathematics II
- 2015.01 - 2015.05, AMA251: Further Calculus
- 2014.09 - 2014.12, AMA150: Calculus I
- 2014.01 - 2014.05, AMA296: Mathematics II
- 2014.01 - 2014.05, AMA164: Statistics II (guided study)
- 2013.09 - 2013.12, AMA150: Calculus I
- 2013.09 - 2013.12, AMA1102: Calculus IA
- 2013.01 - 2013.05, AMA523: Optimal Control with Management Science Applications (postgraduate level)
- 2013.01 - 2013.05, AMA296: Mathematics II
- 2013.01 - 2013.05, AMA164: Statistics II
- 2012.09 - 2012.12, AMA150: Calculus I
- 2012.01 - 2012.05, AMA296: Mathematics II
- 2012.01 - 2012.05, AMA164: Statistics II

- 2008.03 - 2008.07, Principles of Automatic Control, University of Electronic Science and Technology of China
- 2007.03 - 2007.07, Predictive Control (graduate level), Hangzhou Dianzi University
- 2007.03 - 2007.07, Principles of Automatic Control, Hangzhou Dianzi University
- 2006.09 - 2007.01, Applied Stochastic Process (graduate level), Hangzhou Dianzi University
- 2006.01 - 2006.05, Integral Calculus, University of Windsor

4.2 Research postgraduate students

Name of student	Program	Year awarded	Institution	My role
Meixi Guo	Ph.D.		PolyU	supervisor
Zexian Li	Ph.D.		PolyU	co-supervisor
Xiaoqiang Wang	Ph.D.	2021	PolyU	co-supervisor
Lejia Gu	Ph.D.	2020	PolyU	chief supervisor
Yun Shi	Ph.D.	2018	PolyU	co-supervisor
Lei Cui	Ph.D.	2017	PolyU	co-supervisor
Zhiyuan Dong	Ph.D.	2016	PolyU	chief supervisor
Yui Chi Peter Yuen	M.Sc.	2013	PolyU	chief supervisor
Shi Wang	Ph.D.	2013	Australian National University	co-supervisor

5 Research

Research Interests: Sampled-data and networked control; Quantum control; quantum computing and tensor-based quantum computing. [H-index: 26 in Google Scholar; 21 in Scopus. Total number of citations: 2207 citations in Google Scholar (https://scholar.google.com/citations?user=H1QGkk0AAAAJ); 1472 in Scopus (https://www.scopus.com/authid/detail.uri?authorId=7405273435)]

Journal papers

1. Guangpu Wu, Shibei Xue, **Guofeng Zhang** and Ian R. Petersen, "H_2 Model Reduction for Linear Quantum Systems," **IEEE Transactions on Automatic Control, 2026**.
2. Haijin Ding, **Guofeng Zhang**, Mu-Tian Cheng, and Guoqing Cai, "Quantum feedback control of a two-atom network closed by a semi-infinite waveguide," **Automatica, 2026** (**Full Paper**).
3. Zhiyuan Dong, **Guofeng Zhang**, Heung-wing Joseph Le,e and Ian R. Petersen, "Linear quantum systems: poles, zeros, invertibility and sensitivity," **IEEE Transactions on Automatic Control, 2026** (**Full Paper**).

4. Chunxiang Song, Yanan Liu, **Guofeng Zhang**, Huadong Mo, and Daoyi Dojng, "Evolutionary Optimization-Based Design of LQG Controllers in Quantum Coherent Feedback," IEEE Transactions on Cybernetics, vol. 56, no. 5, pp. 2791 - 2804, **2026**.

5. Feipeng Zhang, Lei Zhou, **Guofeng Zhang**, and Long Wang, "Direct reciprocity in multi-action repeated games," **Journal of Theoretical Biology**, vol. 618, 112312, **2026**.

6. Juefei Chen, Yimin Wei, and **Guofeng Zhang**, "Tensor generalized Schur decomposition and its applications," **Journal of Scientific Computing,** 106:31 **2026**.

7. Zexian Li, Xiao-Ming Zhang, Chunlin Yang, **Guofeng Zhang**, "Binary tree block encoding of classical matrix," **IEEE Transactions on Quantum Engineering,** vol. 7, 3100118, **2026**.

8. Shaoxuan Cui, Qi Zhao, **Guofeng Zhang**, Hildeberto Jardón-Kojakhmetov, and Ming Cao, "Analysis of higher-order Lotka-Volterra models: Application of S-tensors and the polynomial complementarity problem," **IEEE Transactions on Automatic Control,** vol. 71, no. 2, pp. 737 - 752 **2026** (**Full Paper**).

9. Chunlin Yang, Zexian Li, Hongmei Yao, Zhaobing Fan, **Guofeng Zhang**, and Jianshe Liu, "Dictionary-based Block Encoding of Sparse Matrices with Low Subnormalization and Circuit Depth," **Quantum**, 9, 1805, **2025**.

10. Yuchao Wang, Yimin Wei, **Guofeng Zhang**, Shih Yu Chang, "Algebraic Riccati Tensor Equations with Applications in Multilinear Control Systems," **SIAM Journal on Control and Optimization**, vol. 63, no. 5, pp. 3378-3406, **2025**.

11. Xian-Li Yin, Heung-wing Joseph Lee, and **Guofeng Zhang**, Giant-atom waveguide QED in squeezed vacuum, **Physical Review A**, vol. 111, no. 033707, **2025**.

12. Yuan Zhou, Yu Zhao, **Guofeng Zhang** and Heung-wing Joseph Lee, Prescribed-time Bipartite Synchronization for General Linear Multi-Agent Systems: An Adaptive Dynamic Output-feedback Strategy, **IEEE Transactions on Cybernetics**, vol. 55. no. 55, pp. 2500-2513, **2025** (**Full Paper**).

13. Shaoxuan Cui, **Guofeng Zhang**, Hildeberto Jardón-Kojakhmetov, and Ming Cao, "On Metzler positive systems on hypergraphs," **IEEE Transactions on Control of Network Systems,** vol. 12, no. 3, pp. 1980-1991, **2025**(**Full Paper**).

14. Dan Yang, Xiaodi Li, **Guofeng Zhang** and Heung-wing Joseph Lee, "State-dependent switching control for nonlinear impulsive switched systems with dwell time," **IEEE Transactions on Automation Science and Engineering,** vol. 22, pp. 12093-12101, **2025** (**Full Paper**).

15. Xue Dong, Xi Cao, Wen-Long Li, **Guofeng Zhang**, Zhihui Peng, and Re-Bing Wu, "Quantum optimal control theory for the shaping of flying qubits," **Physical Review Applied,** vol.23, paper no. 044045, **2025**.

16. Haijin Ding and **Guofeng Zhang** (corresponding author), "Quantum coherent feedback control of an N-level atom with multiple excitations," **IEEE Transactions on Automatic Control,** vol. 70, no. 5, pp. 3117-3132, **2025** (**Full Paper**).

17. Haijin Ding, Nina H. Amini, **Guofeng Zhang** and John E. Gough, "Quantum coherent and measurement feedback control based on atoms coupled with a semi-infinite waveguide," **SIAM Journal on Control and Optimization**, S231-S257, **2025** .

18. **Guofeng Zhang**, Jinghao Li, Zhiyuan Dong, and Ian R. Petersen, "The quantum Kalman decomposition: a Gramian matrix approach," **Automatica**, vol. 173, paper no. 112069, **2025**.

19. Shikun Zhang and **Guofeng Zhang** (corresponding author), "Noise suppression via coherent quantum feedback: a Schrödinger picture approach," **Automatica**, vol. 173, paper no. 112076, **2025** (**Full Paper**).

20. Xiaozhen Ge, Lijun Liu, Yong Wang, Yu Xiang, **Guofeng Zhang**, Li Li, and Shuming Chen, "Faithful geometric measures for genuine tripartite entanglement," **Physical Review A**, vol. 110, paper no. L010402, **2024**.

21. Shikun Zhang and **Guofeng Zhang** (corresponding author), "Closed-Loop designed open-Loop control of quantum systems: an error analysis," **Journal of Franklin Institute**, vol. 361, no. 16, paper no. 107170, **2024**.

22. Haijin Ding and **Guofeng Zhang** (corresponding author), "Quantum coherent feedback control with photons," **IEEE Transactions on Automatic Control,** vol. 69, no. 2, pp. 856-871, **2024** (**Full Paper**).

23. Shaoxuan Cui, **Guofeng Zhang**, Hildeberto Jardon-Kojakhmetov, Ming Cao, "On discrete-time polynomial dynamical systems on hypergraphs," **IEEE Control Systems Letters (L-CSS)**, vol. 8, pp. 1078-1083, **2024**.

24. Hongbin Song (corresponding author), **Guofeng Zhang** (corresponding author), and Hidehiro Yonezawa (corresponding author), "Strong quantum entanglement based on two-mode photon-subtracted squeezed vacuum states," **Physical Review A**, vol. 108, paper no. 052420, **2023**.

25. Shikun Zhang and **Guofeng Zhang** (corresponding author), "Attraction Domain Analysis for Steady States of Markovian Open Quantum Systems," **Automatica**, vol. 157, paper no. 111263, **2023**

26. Tong Dou, **Guofeng Zhang**, and Wei Cui, "Efficient quantum feature extraction for CNN-based learning," **Journal of Franklin Institute**, vol. 360, pp. 7438-7456, **2023**.

27. Zhiyuan Dong, Wei Cui, and **Guofeng Zhang** (corresponding author), "On the dynamics of a quantum coherent feedback network of cavity-mediated double quantum dot qubits," **Journal of Franklin Institute**, vol. 360, pp. 4572- 4596, **2023**.

28. Zhiyuan Dong, **Guofeng Zhang** (corresponding author), Ai-Guo Wu, and Re-Bing Wu, "On the dynamics of the Tavis-Cummings model," **IEEE Transactions on Automatic Control,** vol. 68(4), pp. 2048-2063 **2023** (**Full Paper**),.

29. Yu Pan, Yifan Tong, Shibei Xue, and **Guofeng Zhang**, "Efficient depth selection for the implementation of noisy quantum approximate optimization algorithm," **Journal of Franklin Institute**, vol. 359, pp. 11273-11287, **2022**.

30. Wenlong Li, Xue Dong, **Guofeng Zhang** (corresponding author), and Re-bing Wu (corresponding author), "Flying-qubit control via a three-level atom with tunable waveguide," **Physical Review B**, vol. 106, paper no. 134305, **2022**.

31. **Guofeng Zhang** (corresponding author) and Zhiyuan Dong, "Linear quantum systems: a tutorial," **Annual Reviews in Control,** vol. 54, pp. 274-294, **2022 (Invited Tutorial Research Paper)**.

32. Wenlong Li, **Guofeng Zhang**, and Re-bing Wu, "On the control of flying qubits," **Automatica**, vol. 143, paper no. 110338, 9 pages, **2022** (**Full Paper**).

33. Hongbin Song (corresponding author), **Guofeng Zhang** (corresponding author), Xiaoqiang Wang, Hidehiro Yonezawa (corresponding author), and Kaiquan Fan, "Amplification of optical Schrödinger cat states with an implementation protocol based on a frequency comb," **Physical Review A**, vol. 105, paper no. 043713, 11 pages, **2022**.

34. Yiwei Chen, Yu Pan (corresponding author), **Guofeng Zhang** (corresponding author), and Shuming Cheng (corresponding author), "Detecting quantum entanglement with unsupervised learning," **Quantum Science and Technology**, vol. 7, paper no. 015005, 12 pages, **2022**.

35. **Guofeng Zhang**, "Control engineering of continuous-mode single-photon states: a review," **Control Theory and Technology**, vol. 19, pp. 544-562, **2021** (**Invited Paper**).

36. Xiaoqiang Wang, Lejia Gu, Heung-wing Joseph Lee, and **Guofeng Zhang** (corresponding author), "Quantum tensor singular value decomposition," **Journal of Physics Communications**, vol. 5, paper no. 075001, 16 pages, **2021**.

37. Xiaoqiang Wang, Lejia Gu, Heung-wing Joseph Lee, and **Guofeng Zhang** (corresponding author), "Quantum context-aware recommendation systems based on tensor singular value decomposition," **Quantum Information Processing**, vol. 20, no. 5, paper no. 190, 32 pages, **2021**

38. **Guofeng Zhang**, Ian R. Petersen, and Jinghao Li, "Structural characterization of linear quantum systems with application to back-action evading measurement," **IEEE Transactions on Automatic Control**, vol. 65, no. 7, pp. 3157-3163, **2021**

39. **Guofeng Zhang** and Yu Pan, "On the dynamics of two photons interacting with a two-qubit coherent feedback network," **Automatica**, vol. 117, paper no. 108978, 13 pages, **2020** (**Full Paper**)

40. Mengshi Zhang, Guyan Ni and **Guofeng Zhang**, "Iterative methods for computing U-eigenvalues of non-symmetric complex tensors with application in quantum entanglement," **Computational Optimization and Applications,** vol. 75, pp. 779-798, **2020**

41. **Guofeng Zhang** and Ian R. Petersen, "Structural decomposition for quantum two-level systems," **Automatica**, vol. 113, paper no. 108751, 8 pages, **2020**

42. Qing Gao, **Guofeng Zhang** (corresponding author), and Ian R. Petersen, "An improved quantum projection filter," **Automatica**, vol. 112, paper no. 108716, 9 pages, **2020** (**Full Paper**)

43. Gangshan Jing, **Guofeng Zhang**, Heung Wing Joseph Lee, and Long Wang, "Angle-based shape determination theory of planar graphs with application to formation stabilization," **Automatica,** vol. 105, pp. 117-129, **2019** (**Full Paper**)

44. Gaopeng Duan, Aming Li, Tao Meng, **Guofeng Zhang**, and Long Wang, "Energy cost for controlling complex networks with linear dynamics," **Physical Review E**, vol. 99, paper no. 052305, 12 pages. **2019**

45. Zhiyuan Dong, **Guofeng Zhang** (corresponding author), and Nina H. Amini, "Quantum filtering for a two-level atom driven by two counter-propagating photons," **Quantum information Processing**, vol. 18, paper no. 136, 27 pages, **2019**

46. Zhiuan Dong, **Guofeng Zhang** (corresponding author), and Nina H. Amini, "On the response of a two-level system to two-photon inputs," **SIAM Journal on Control and Optimization,** vol. 57, no. 5, pp. 3445-3470, **2019** (**Full Paper**)

47. Qing Gao, **Guofeng Zhang** (corresponding author), and Ian R. Petersen, "An exponential quantum projection filter for open quantum systems," **Automatica**, vol. 99, pp. 59-68, **2019** (**Full Paper**)

48. Xiaofeng Wang, **Guofeng Zhang**, and Weijian Kong, "Evolutionary dynamics of the prisoner's dilemma with expellers," **Journal of Physics Communications,** vol. 3, paper no. 015011, 26 pages, **2019**.

49. Maolin Che, Yimin Wei, Liqun Qi, and **Guofeng Zhang**, "Geometric measures of entanglement in multipartite pure states via complex-valued neural networks," **Neurocomputing**, vol. 313, pp. 25-38, **2018**

50. Shi Wang, Hendra I. Nurdin, **Guofeng Zhang**, and Matthew R. James, "Representation and network synthesis for a class of mixed quantum-classical linear stochastic systems," **Automatica**, vol. 96, no. 10, pp. 84-97, **2018** (**Full Paper**)

51. Gangshan Jing, **Guofeng Zhang**, Heung Wing Joseph Lee, and Long Wang, "Weak rigidity theory and its application to formation stabilization," **SIAM Journal on Control and Optimization**, vol. 56, no.3, pp. 2248-2273, **2018** (**Full Paper**)

52. Liqun Qi, **Guofeng Zhang** (corresponding author), and Guyan Ni, "How entangled can a multi-party system possibly be?" **Physics Letters A**, vol. 382, pp. 1465-1471, **2018**

53. **Guofeng Zhang**, Symeon Grivopoulos, Ian R. Petersen, and John E. Gough, "The Kalman decomposition for linear quantum systems," **IEEE Transactions on Automatic Control**, vol. 63, no. 2, pp. 331-346, **2018** (**Full Paper**)

54. Zhiyuan Dong, **Guofeng Zhang** (corresponding author), and Nina H. Amini, "Single-photon quantum filtering with multiple measurements," **International Journal of Adaptive Control and Signal Processing**, vol. 32, pp. 3, pp. 528-546, **2018**

55. Yu Pan and **Guofeng Zhang** (corresponding author), "Scattering of few photons by a ladder-type quantum system," **Journal of Physics A: Mathematical and Theoretical**, vol. 50, no. 34, paper no. 345301, 16 pages, **2017**

56. John E. Gough and **Guofeng Zhang**, "Classical and quantum stochastic models of resistive and memristive circuits," **Journal of Mathematical Physics**, vol. 58, paper no. 073505, 19 pages, **2017**

57. **Guofeng Zhang**, "Dynamical analysis of quantum linear systems driven by multi-channel multi-photon states," **Automatica**, vol. 83, pp. 186-198, **2017** (**Full Paper**)

58. Liqun Qi, **Guofeng Zhang**, Daniel Braun, Fabian Bohnet-Waldraff, Olivier Giraud, "Regularly decomposable tensors and classical spin states," **Communications in Mathematical Sciences**, vol. 15, no, 6, pp. 1651-1665, **2017**

59. Lei Cui, Zhiyuan Dong, **Guofeng Zhang** (corresponding author), and Heung Wing Joseph Lee, "Mixed LQG and H_∞ coherent feedback control for linear quantum systems," **International Journal of Control**, vol. 90, no. 12, pp. 2575-2588, **2017**

60. Liang Qiao, Qingling Zhang, and **Guofeng Zhang**, "Admissibility analysis and control synthesis for T-S fuzzy descriptor Systems," **IEEE Transactions on Fuzzy Systems,** vol. 25, no. 4, pp. 929-740, **2017** (**Full Paper**)

61. Zhiyuan Dong, Lei Cui, **Guofeng Zhang** (corresponding author), and Hongchen Fu, "Wigner spectrum and coherent feedback control of continuous-mode single-photon Fock states," **Journal of Physics A: Mathematical and Theoretical,** vol. 49, no. 43, paper no. 435301, 21 pages, **2016** *(Figure 7 in the paper was used in the cover page of this issue.)*

62. Hongting Song, **Guofeng Zhang** (corresponding author), and Zairong Xi, "Continuous-mode multiphoton filtering," **SIAM Journal on Control and Optimization,** vol. 54, no. 3, pp.1602-1632, **2016** (**Full Paper**)

63. Yu Pan, Daoyi Dong, and **Guofeng Zhang** (corresponding author), "Exact analysis of the response of quantum systems to two photons using a QSDE approach," **New Journal of Physics,** vol. 18, paper no. 033004, 15 pages, **2016**

64. Yu Pan, **Guofeng Zhang**, and Matthew R. James, "Analysis and control of quantum finite-level systems driven by single-photon input states," **Automatica,** vol. 69, pp. 18-23, **2016**

65. Shenglong Hu, Liqun Qi, and **Guofeng Zhang** (corresponding author), "Computing the geometric measure of entanglement of multipartite pure states by means of non-negative tensors," **Physical Review A,** vol. 93, paper no. 012304, 7 pages, **2016**

66. Yi Zhang, Qiaoling Zhang, and **Guofeng Zhang**, "H^∞ Control of T-S fuzzy fish population logistic model with the invasion of alien species," **Neurocomputing,** vol. 173, pp. 724-733, **2016**

67. John E. Gough and **Guofeng Zhang**, "Generating nonclassical quantum input field states with modulating filters," **EPJ Quantum Technology,** vol. 2, no.1, 2:15, **2015**

68. John E. Gough and **Guofeng Zhang** (corresponding author), "On realization theory of quantum linear Systems", **Automatica,** vol. 59, pp. 139-151, **2015** (**Full Paper**)

69. Shenglong Hu, Liqun Qi, Yisheng Song, and **Guofeng Zhang** (corresponding author), "Geometric measure of quantum entanglement for multipartite mixed states," **Special Issue on Quantum Computation and Quantum Information Processing, Guest Editors Shunlong Luo, Matteo G. A. Paris, and Yun Shang, International Journal of Software and Informatics,** vol. 8, no. 3-4, pp. 317-326, **2014 (Invited Paper)**.

70. **Guofeng Zhang**, "Analysis of quantum linear systems' response to multi-photon states," **Automatica,** vol. 50, no. 2, pp. 442-451, **2014** (**Full Paper**)

71. Shi Wang, Hendra I. Nurdin, **Guofeng Zhang**, and Matthew R. James, "Quantum optical realization of classical linear stochastic systems," **Automatica,** vol. 49, no. 10, pp. 3090-3096, **2013**

72. **Guofeng Zhang** and Matthew R. James, "On the response of quantum linear systems to single photon input fields," **IEEE Transactions on Automatic Control,** vol. 58, no. 5, pp. 1221-1235, **2013** (**Full Paper**)

73. **Guofeng Zhang**, Heung-wing Joseph Lee, Bo Huang, and Hu Zhang, "Coherent feedback control of linear quantum optical systems via squeezing and phase shift," **SIAM Journal on Control and Optimization,** vol. 50, no. 4, pp. 2130-2150, **2012** (**Full Paper**)

74. Chuanxin Bian, **Guofeng Zhang** (corresponding author), and Heung-wing Joseph Lee, "Squeezing enhancement of degenerate parametric amplifiers via coherent feedback control," **International Journal of Control,** vol. 85, no. 12, pp. 1865-1875, **2012**

75. **Guofeng Zhang** and Matthew R. James, "Quantum feedback networks and control: a brief survey," **Chinese Science Bulletin,** vol. 57, no. 18, pp. 2200-2214, **2012 (Invited Paper)**

76. **Guofeng Zhang** and Matthew R. James, "Direct and indirect couplings in coherent feedback control of linear quantum systems," **IEEE Transactions on Automatic Control,** vol. 56, pp. 7, pp. 1535-1550, **2011** (**Full Paper**)

77. **Guofeng Zhang**, Long Wang, and Tongwen Chen, "Complexity analysis of networked-based dynamical systems," **Journal of Systems Science and Complexity,** vol. 24, pp. 413-432, **2011**.

78. Jinliang Shao, Tingzhu Huang, and **Guofeng Zhang**, "Linear system based approach for solving some related problems of M-matrices," **Linear Algebra and its Applications,** vol. 432, no. 1, pp. 327-337, **2010**

79. **Guofeng Zhang** and Weixing Zheng, "Stability and bifurcation analysis of a class of networked dynamical systems," **IEEE Transactions on Circuits and Systems II: Express Briefs,** vol. 56, no. 8. pp/ 664-668, **2009**

80. Junyan Yu, Long Wang, **Guofeng Zhang**, and Mei Yu, "Output feedback stabilisation of networked control systems via switched system approach," *International Journal of Control,* vol. 82, no. 9, pp. 1665-1677, **2009**

81. Bin Wu, Long Wang, **Guofeng Zhang** (corresponding author), and Jing Wang, "Linguistic consensus on a circle," **International Journal Information and Systems Sciences,** 5(2): 219-229, **2009**.

82. **Guofeng Zhang**, Xiang Chen and Tongwen Chen, "Digital redesign via the generalised bilinear transformation," **International Journal of Control,** vol. 82, no. 4, pp. 741-754, **2009**

83. **Guofeng Zhang**, Xiang Chen, and Tongwen Chen, "A mixed-integer programming approach to networked control systems," **International Journal of Numerical Analysis and Modeling,** vol. 5. pp. 590-611, **2008**

84. **Guofeng Zhang**, Tongwen Chen, and Xiang Chen, "Performance recovery in digital implementation of analogue systems," **SIAM Journal on Control and Optimization,** vol. 45, no. 6, pp. 2207-2223, **2007** (**Full Paper**)

85. **Guofeng Zhang**, Guanrong Chen, Tongwen Chen, and Maria B. D'Amico, "Dynamical analysis of a networked control system," **International Journal of Bifurcation and Chaos,** vol. 17, no. 1, pp. 61-83, **2007**

86. **Guofeng Zhang**, Guanrong Chen, Tongwen Chen, and Yanping Lin, "Analysis of a type of nonsmooth dynamical systems," **Chaos, Solitons & Fractals,** vol. 30, pp. 1153-1164, **2006**

87. **Guofeng Zhang** and Tongwen Chen, "Networked control systems: a perspective from chaos," **International Journal of Bifurcation and Chaos,** vol. 15, no. 10, pp. 3075-3101, **2005**

88. **Guofeng Zhang** and Tongwen Chen, "Comparing digital implementation via the bilinear and step-invariant transformations," **Automatica,** vol. 40, no. 2, pp. 327-330, **2004**

89. **Guofeng Zhang**, Qingling Zhang, Tongwen Chen, and Yanping Lin, "On Lyapunov theorems for descriptor systems," **Dynamics of Continuous, Discrete and Impulsive Systems, Series B: Applications and Algorithms,** 10(5):709-726, **2003**.

Conference papers

1. Shaoxuan Cui, **Guofeng Zhang**, Hildeberto Jardón-Kojakhmetov, and Ming Cao, "On Tensor-based Polynomial Hamiltonian Systems," 2025 IEEE 64th Conference on Decision and Control (CDC), Rio de Janeiro, Brazil, pp. 7331-7336, December 10-12, **2025**.

2. Zhiyuan Dong, **Guofeng Zhang**, and Heung Wing Joseph Lee, "On Poles and Zeros of Linear Quantum Systems," 2024 IEEE 63rd Conference on Decision and Control (CDC), Milan, Italy, pp. 7-12, **2024**

3. Shaoxuan Cui, **Guofeng Zhang**, Hildeberto Jardón-Kojakhmetov, and Ming Cao, "On Discrete-Time Polynomial Dynamical Systems on Hypergraphs," The IEEE 55th CDC, Milan, December **2024**.

4. Hongbin Song, **Guofeng Zhang**, and Hidehiro Yonezawa, "Entanglement Generation with Schrödinger Kitten States," 2022 Asia Communications and Photonics Conference (ACP), 2135-2136, **2022**.

5. Zhiyuan Dong, **Guofeng Zhang**, and Ai-Guo Wu, "Covariance functions for quantum linear system driven by few photons," 39th Chinese Control Conference (CCC), pp. 5800-5804, **2020**.

6. Wen-long Li, **Guofeng Zhang**, and Re-bing Wu. "The dynamical model of flying-qubit control systems," In 20th World Congress of The International Federation of Automatic Control (IFAC World Congress), volume 50, pp.1755-11759, **2020**.

7. Lejia Gu, Xiaoqiang Wang, and **Guofeng Zhang**, "Quantum higher order singular value decomposition," 2019 IEEE International Conference on Systems, Man, and Cybernetics (SMC), pp. 1166-1171, Bari, Italy, 6-9 October, **2019**.

8. Gaopeng Duan, Aming Li, Tao Meng, Guofeng Zhang, and Long Wang, "Upper bound of the minimum energy cost for controlling complex networks," the 38th Chinese Control Conference (CCC), pp. 5393-5398, Guangzhou, China 27-30, **2019**.

9. Q. Gao and **Guofeng Zhang**, "Quantum projection filtering for open quantum systems," *in Proc. the 56th IEEE Conference on Decision and Control (CDC),* pp. 5529-5534, Melbourne, Australia, December 12-15, **2017**.

10. Zhiyuan Dong, **Guofeng Zhang**, and Nina H. Amini, "Exact analysis of quantum filter for systems driven by two counter-propagating single-photon states," *in Proc. the 20th World Congress of The International Federation of Automatic Control,* pp. 12246-12251, Toulouse, France, July 9-14, **2017**.

11. S. Grivopoulos, **Guofeng Zhang**, I. R. Petersen, and J. E. Gough, "The Kalman decomposition for linear quantum stochastic systems," *in Proc. the 2017 American Control Conference (ACC),* pp. 1073-1078, Seattle, WA, USA, May **2017**.

12. Zhiyuan Dong, **Guofeng Zhang**, and Nina H. Amini, "Quantum filtering for multiple measurements driven by fields in single-photon states," *in Proc. the 2016 American Control Conference (ACC),* pp. 4754-4759, Boston, MA, USA, July 6-8, **2016**.

13. Zhiyuan Dong, **Guofeng Zhang**, and Nina H. Amini, "Quantum filtering for multiple measurements driven by two single-photon states," *in Proc. 12th World Congress on Intelligent Control and Automation (WCICA)*, pp. 3011-3015, Guilin, China, June 12-15, **2016**.

14. Yu Pan, **Guofeng Zhang**, Wei Cui, and Matthew R. James, "Single photon inverting pulse for an atom in a cavity," *in Proc. 54th IEEE Conference on Decision and Control (CDC),* pp. 6429-6433, Osaka, Japan, December 15-18, **2015**.

15. Chuanxin Bian, **Guofeng Zhang**, and Heung-wing Joseph Lee, "$LQG|H_\infty$ control of linear quantum stochastic systems," *in Proc. 34th Chinese Control Conference (CCC),* pp. 8303-8308, Hangzhou, China, July 28-30, **2015**.

16. Shi Wang, Hendra I. Nurdin, **Guofeng Zhang**, and Matthew R. James, "Synthesis and structure of mixed quantum-classical linear systems," *in Proc. 51st IEEE Conference on Decision and Control (CDC),* pp. 1093-1098, Maui, Hawaii, USA, December 10-13, **2012**.

17. **Guofeng Zhang** and Matthew R. James, "On the response of linear quantum stochastic systems to single-photon inputs and pulse shaping of photon wave packets," *in Proc. 2011 Australian Control Conference (AUCC),* Engineers Australia, Australia, pp. 62-67 , **2011**.

18. Shi Wang, Hendra I. Nurdin, **Guofeng Zhang**, and Matthew R. James, "Implementation of classical linear stochastic systems using quantum optical components," *in Proc. 2011 Australian Control Conference (AUCC),* Engineers Australia, Australia, pp. 351-356, **2011**.

19. **Guofeng Zhang**, Xiang Chen, and Tongwen Chen, "ℓ_p-equivalence of discretizations of analog controllers," *in Proc. the 17th IFAC World Congress,* pp. 15232-15237, Seoul, Korea, July 6-11, **2008**.

20. **Guofeng Zhang**, Xiang Chen, and Tongwen Chen, "Performance comparison of digital implementation of analog systems," *in Proc. 46th Conference on Decision and Control (CDC),* pp. 785-790, New Orleans, December 12-14, **2007**

21. **Guofeng Zhang**, Xiang Chen, and Tongwen Chen, "A model predictive control approach to networked control systems," *in Proc. 46th Conference on Decision and Control (CDC),* pp. 3339-3344, New Orleans, December 12-14, **2007**.

Book chapters

1. Guofeng Zhang, "Single-photon coherent feedback control and filtering," In: Baillieul J., Samad T. (eds) *Encyclopedia of Systems and Control,* Springer, London, **2020** **(Invited Paper)** [https://link.springer.com/referenceworkentry/10.1007/978-1-4471-5102-9_100156-1].

6 External research grants

1. **Guofeng Zhang** (PI), Quantum Linear Control Systems: Mathematical Structure and Physical Properties, the Hong Kong Research Grant Council, 15213924, 2024.10 - 206.10, HK$782,038.

2. **Guofeng Zhang** (Co-I), Study of critical nanomagnetism using diamond-based quantum sensing, Innovation Program for Quantum Science and Technology, No. 2023ZD0300600, China Ministry of Science and Technology of the People's Republic of China (MOST), Chinese ¥1,8000,000. (PolyU got Chinese ¥700,000 out of 4,100,000 for the theoretical part)

3. **Guofeng Zhang** (Co-I), Structural Analysis and Control Design of Linear Quantum Systems Based on Kalman Decomposition, National Natural Science Foundation of China (NSFC), No. 62473117, 2025-2028, Chinese ¥500,000.

4. **Guofeng Zhang** (PI), Dynamical Analysis of the Tavis-Cummings Model, National Natural Science Foundation of China (NSFC), No. 62173288, 2022-2025, Chinese ¥570,000.

5. Hongbin Song and **Guofeng Zhang** (Co-I), Performance Optimization of a Quantum Teleportation System for Continuous Variables, Shenzhen Fundamental Research Fund under Grant No. JCYJ20190813165207290, 2020.02-2023.02, Chinese ¥400,000.

6. Estimation and Control of Open Quantum Systems — Q-COAST, ANR, France, Co-I, 01/10/2019-30/09/2023, 230,911 Euros.

7. **Guofeng Zhang** (PI) and Ian R. Petersen, Quantum Finite-level Systems: Structure Analysis, Feedback Control, and Filtering, the Hong Kong Research Grant Council, 15203619, 2020 - 2023, HK$695,919.

8. **Guofeng Zhang** (PI) and Ian R. Petersen, Quantum Linear Systems: Structure Analysis and Applications, the Hong Kong Research Grant Council, 15208418, 2018 - 2021, HK$623,386.

9. **Guofeng Zhang** (PI) and Ian R. Petersen, Control-oriented Quantum Systems analysis, the Hong Kong Research Grant Council, 15206915, 2015 - 2018, HK$695,854.

10. **Guofeng Zhang** (PI), John E. Gough, and Matthew R. James, Analysis and feedback Control of Quantum linear Systems, the Hong Kong Research Grant Council, RGC PolyU 531213, 2013 - 2016, HK$645,000.

11. John E. Gough (UK side) and **Guofeng Zhang** (China side), Royal Academy of Engineering UK-China Exchange grant, 2013 - 2015, UK £16,000.

12. **Guofeng Zhang** (PI), Mixed LQG/H^∞ Control and sampled-data Control of networked Quantum Control Systems, National Natural Science Foundation of China (NSFC), No. 61374057, 2014 - 2017, Chinese ¥790,000.

13. Heung-wing Joseph Lee, Matthew R. James, and **Guofeng Zhang** (Co-I) Coherent feedback Control of Quantum optical Systems, the Hong Kong Research Grant Council, RGC PolyU 5203/10E, 2010 - 2012, HK$420,000.

14. **Guofeng Zhang** (PI), Complexity analysis and Control of network-based hybrid Systems, National Natural Science Foundation of China (NSFC), 2009 - 2011, Chinese ¥200,000.

7 Keynote talks and distinguished Lectures

- **Keynote Address**, the International Conference and Exposium on Quantum Sensing and Metrology (ICEQSM) 2025, 10th-13th September 2025, Bose Institute, Kolkata, India
- **Keynote Speaker**, 2025 TCCT Conference on Logical Control systems, Nanjing, China, August 1-3, 2025
- **Keynote Speaker** , 2025 IEEE/CAA Journal of Automatica Sinica Conference on AI-driven Systems, Xi'an, China, May 16-18, 2025
- **Distinguished Lecturer**, the 36th Chinese Conference on Decision and Control, Xi'an, China, May 25-27, 2024
- **Keynote Speaker**, Quantum Technologies Awareness Programme in HK & Greater Bay Area, Hong Kong, October 14, 2022
- **Keynote Speaker**, International Conference on Quantum Computing & Applications (ICQCA 2021), Hong Kong, March 27, 2021
- **Plenary Speaker**, The 3rd Chinese Conference on Intelligent Networks of Things, Guangzhou, China, December 1-3, 2015
- **Invited Speaker**, Hong Kong satellite meeting, APS March Meeting 2024, March 8, 2024

8 Invited conference talks

- SIAM Conference on Control and Its Applications (CT25), Montreal, Canada, July 28-30, 2025
- The 9th Nonlinear Systems and Control Conference and the 1st International Conference on Super Robotics & the 18th SCIS Symposium on Frontiers of Information Science and Technology, Guangzhou, China, May 19-22, 2025
- The 2024 Hong Kong Summer Workshop on Spin-based Quantum Science and Technology, The Chinese University of Hong Kong, August 4-7, 2024
- The 11th International Workshops on Solid State Quantum Computing (IWSSQC2023), Guangzhou, December 13-16, 2023

- 2023 International Conference on the Cooperation and Integration of Industry, Education, Research, and Application, Haikou, November 8-9, 2023
- Workshop on Quantum Systems Theory, IFAC World Congress, Yokohama, July 9, 2023
- Workshop on Complex Networks, Control, and Games, Xi'an, China, May 12-14, 2023
- The 10th TCCT Chinese Control Workshop, Chengdu, China, May 12-14, 2023
- The Fifth International Academic Forum on Process Control and Optimization, 21-22 August 2022, China University of Petroleum (online)
- The International Academic Forum on Artificial Intelligence, 6 August 2022, Beijing (One of the three invited speakers)
- Q-coast : Estimation and Control of open Quantum Systems, 16-18 May 2022, Paris, France
- The 10th International Workshops on Solid State Quantum Computing (IWSSQC2021), Hong Kong, December 2021
- The 9th TCCT Quantum Control Workshop, July 15 - 17, 2021, Changsha, China.
- Summer School on Quantum Control and Quantum Machine Learning, Nanjing, China, July 2019
- Pre-workshop for the 1st Quantum Science, Engineering and Technology Conference, Canberra, Australia, 8-11 April 2019
- The Mathematics of Quantum Information, March 18-21, 2019, University of Siegen, Germany
- The 2nd workshop on Quantum Machine Learning and Quantum Simulation, Chengdu, 2019
- The 1st International Workshop on Quantum Cybernetics and Machine Learning & 6th TCCT Quantum Control Workshop, June 23-24, 2018, Hangzhou
- Seminar Series on Complex Systems, Networks, Control and Applications, City University of Hong Kong, April 2018
- Principle and Application of Control in Quantum Systems (PRACQSYS), Seattle, July 17-20, 2017. (declined due to visa issue)
- Joint workshop organized by AMSS-AMA, January 2017.
- The 4th China-Australia Workshop on Quantum Control, Hefei, China, September 25-28, 2016 (declined due to time conflict with teaching)
- The 2016 Workshop of Stochastic Optimization and Tensor Analysis, Changsha, China, March 26-29, 2016

- Principle and Application of Control in Quantum Systems (PRACQSYS) Sydney, July 20-24, 2015
- The 3rd China-Australia Workshop on Quantum Control, Brisbane, Australia, September 29-October 3, 2014
- Quantum Control Engineering: Mathematical Principles and Application, Cambridge, July 21-August 15, 2014
- Seminar Series on Chaos, Control and Complex Systems, City University of Hong Kong, March 2014
- Workshop on quantum information and control, Chinese Academy of Science, Beijing, October 2013
- 2013 Quantum Control Spring Meeting, Institute of Intelligent Machines (IIM), Chinese Academy of Sciences (CAS), Hefei, April 2013.
- The 2nd China-Australia Workshop on Quantum Control, Beijing, China, November 5-8, 2012
- Workshop on Quantum Information and Quantum Control, National University of Defense Technology, April 2012

9 Summer Schools

1. Summer School on **Quantum Computation**, The Hong Kong Polytechnic University, 25 July, **2024**.
2. Principal Lecturer, Summer School on **Quantum Information and Quantum Computation**, Tianyuan Mathematical Center in Northeast China, Harbin, 21-30, July, **2023** (12.5 hours)
3. Principal Lecturer, Summer School on **Quantum Algorithms**, organized by National University of Defense Technology, Hunan University, and the Operational Research Society, Hunan Province, 2-6 August, **2022** (20 hours)
4. Lecturer, Summer School on Quantum Control and Quantum Machine Learning, Nanjing, China, July **2019** (3 hours)
5. Principal Lecturer, Summer School on **Quantum Control and Single-Photon Pulse Shaping**, Tsinghua University, 29 April - 3 May, **2019** (18 hours).

10 Awards

- 2018/19, Best Paper Award, Department of Applied Mathematics, The Hong Kong Polytechnic University

11 Service

Journal Editorship

- January 2026 - December 2029, **Associate Editor** for Journal of Control and Decision (JCD)
- 2022, **Lead Guest Editor** for the Special Issue on Control, Estimation, and Machine Learning in a Quantum Framework for Journal of The Franklin Institute
- 2010 - present, **Guest Associate Editor**, International Journal of Bifurcation and Chaos
- 2021 - present, **Associate Editor** for IET Control Theory & Applications
- **Associate Editor**, the 2015 IEEE Multi-Conference on Systems and Control, Sydney, Australia, September 21-23, 2015

Conference programme committee membership

- Organizing Committee Member, International Conference on Mathematical Modeling and Computational Intelligence for Sustainable Development (ICMMCISD-2026), 3-5 June, 2026.
- Award Selection Committee of Quantum Computing, Systems and Control TC Outstanding Student Prize, 2025, 2026.
- Technical Associate Editor (TAE) for the 23rd IFAC World Congress 2026, August 23-28, 2026 in Busan, Korea.
- **General Chair**, 2025 IEEE International Conference on Quantum Control, Computing and Learning (IEEE qCCL2025), Hong Kong, June 25-28, 2025.
- Steering Committee member, International Conference on Quantum Errors, Sensing and Control: Principles, Applications and Engineering (Q-ESCAPE), Shenzhen, July 21-24, 2024
- **General Chair** of the 13th Workshop on Principle and Application of Control in Quantum Systems (PRACQSYS), Hong Kong, December 14-18, 2019 (All the preparation has been done, but unfortunately due to social activity, the workshop was cancelled on November 16, 2019)
- Student Activities Co-Chair, IEEE Conference on Control Technology and Applications (IEEE CCTA) , Hong Kong, August 19-21, 2019

- General Co-chair, the 23rd International Symposium on Mathematical Theory of Networks and Systems (MTNS 2018), Hong Kong, July 16-20, 2018
- Presiders of The 13th Pacific Rim Conference on Lasers and Electro-Optics (CLEO Pacific Rim, CLEO-PR 2018), Hong Kong, July 29-August 3, 2018
- Co-organizer of the 4th and 5th Workshops on Quantum Information, jointly held by PolyU and the University of Hong Kong
- Senior Member, IEEE
- Member, IEEE SMC Technical Committee on Quantum Cybernetics
- Board Member, the Hong Kong Automatic Control Association (HKACA)

External examiner of PhD dissertations for

- The University of New South Wales (2012, 2015, 2026)
- The University of Hong Kong (2013, 2015, 2018)
- The Australian National University (2015, 2019)
- The University of Western Australia (2015)
- The City University of Hong Kong (2018, 2023, 2025 for three PhD candidates, 2026)
- The Chinese University of Hong Kong (2019, 2020)
- The University of Science and Technology of Hong Kong (2021 for two Ph.D. candidates, 2022, 2023 for two PhD candidates, 2024 for two PhD candidates, 2025 for three PhD candidates)
- University of Groningen (2024, 2026)
- Tsinghua University (2025)
- The City University of Hong Kong (2026)