Dr. Bo Huang
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RECENT EVENTS

- DESC 2023, Beijing, China, 16–17/09/2023 (Co-organizer)
- 20th Christmas Symposium of Physicists, Maribor, Slovenia, 14–16/12/2023 (Invited speaker)
- Special issue on Symbolic Computation for Differential Equations (Guest editor)

RESEARCH INTERESTS

- Symbolic and Algebraic Computation
- Differential Equations and Dynamical Systems

EDUCATION

- 01/09/2016–06/01/2021. **Ph.D.** in Applied Mathematics, School of Mathematical Sciences, Beihang University, with Dongming Wang
- 23/09/2018–23/09/2020. Joint **Ph.D.** in Computer Science, Courant Institute of Mathematical Sciences, New York University, with Chee Yap
- 01/09/2014–26/06/2016. **M.S.** in Applied Mathematics, School of Mathematical Sciences, Beihang University, with Linping Peng
- 01/09/2010–06/07/2014. **B.S.** in Mathematics and Applied Mathematics, School of Mathematics and Statistics, Xuchang University

EMPLOYMENT

- 01/2021–07/2023: School of Mathematical Sciences, Beihang University
  Postdoctoral, with Deren Han
- 11/2023–present: School of Mathematical Sciences, Beihang University

SELECTED PUBLICATIONS

1. **B. Huang**, D. Wang. Zero-Hopf bifurcation of limit cycles in certain differential systems. Submitted to *Bulletin des Sciences Mathématiques*, under revision

2. C. Chen, **B. Huang**, D. Yu, D. Han. Optimal parameter of the SOR-like iteration method for solving absolute value equations. *Numerical Algorithms*, to appear

3. **B. Huang**. Using symbolic computation to analyze zero-Hopf bifurcations of polynomial differential systems. *Proceedings of the 2023 International Symposium on Symbolic and Algebraic Computation*, pp. 307–314, 2023

4. **B. Huang**, C. Yap. An algorithmic approach to small limit cycles of nonlinear differential systems: The averaging method revisited. *Journal of Symbolic Computation*, **115**, 492–517, 2023, an essential improvement for the paper in *Proceedings of the 44th International Symposium on Symbolic and Algebraic Computation*, pp. 211–218, 2019

5. **B. Huang**, W. Niu, D. Wang. Symbolic computation for the qualitative theory of differential equations. *Acta Mathematica Scientia*, **42B**, 2478–2504, 2022

6. **B. Huang**, L. Peng, Y. Cui. On the number of limit cycles bifurcating from a quartic reversible center. *Mediterranean Journal of Mathematics*, **19**, 220, 2022

7. Y. Tian, **B. Huang***. Local stability and Hopf bifurcations analysis of the Muthuswamy-Chua-Ginoux system. *Nonlinear Dynamics*, **109**, 1135–1151, 2022

8. **B. Huang**, D. Han. Analysis of zero-Hopf bifurcation in high dimensional polynomial differential systems with algorithm derivation (in Chinese). *Journal of Systems Science and Mathematical Sciences*, **41**, 3280–3298, 2021

9. Y. Hu, W. Niu, **B. Huang***. Bounding the number of limit cycles for parametric Liénard systems using symbolic computation methods. *Communications in Nonlinear Science and Numerical Simulation*, **96**, 105716, 2021

10. **B. Huang**. Algorithmic averaging for studying periodic orbits of planar differential systems. *Proceedings of the 45th International Symposium on Symbolic and Algebraic Computation*, pp. 241–248, 2020

11. **B. Huang**. On the limit cycles for a class of discontinuous piecewise cubic polynomial differential systems. *Electronic Journal of Qualitative Theory of Differential Equations*, **25**, 1–24, 2020

12. D. Wang, **B. Huang**, X. Chen. On n-sectors of the angles of an arbitrary triangle. *Mathematics in Computer Science*, **14**, 757–773, 2020

13. **B. Huang**. Limit cycles for a discontinuous quintic polynomial differential system. *Qualitative Theory of Dynamical Systems*, **18**, 769–792, 2019

14. **B. Huang**, W. Niu. Analysis of snapback repellers using methods of symbolic computation. *International Journal of Bifurcation and Chaos*, **29**, 1950054-1–13, 2019

15. **B. Huang**, W. Niu. Algebraic analysis of bifurcations and chaos for discrete dynamical systems. *Proceedings of the 8th Mathematical Aspects of Computer and Information Sciences*, pp. 169–184, 2019

16. **B. Huang**, W. Niu. Limit cycles for two classes of planar polynomial differential systems with uniform isochronous centers. *Journal of Applied Analysis and Computation*, **9**, 943–961, 2019

17. **B. Huang**. Bifurcation of limit cycles from the center of a quintic system via the averaging method. *International Journal of Bifurcation and Chaos*, **27**, 1750072-1–16, 2017

SELECTED GRANTS

- Analysis of Limit Cycles and Chaotic Behavior for Dynamical Systems Using Symbolic Computation *Principal Investigator*, Fund for Young Scientists, NSFC, 01/01/2022–31/12/2024 300,000 CNY

- Study on Nonconvex Optimization Problems Arising from Machine Learning and Artificial Intelligence *Participant*, Fund for Key Program, NSFC, 01/01/2022–31/12/2026 2520,000 CNY

- Mathematical Innovation Method and Software Module Development in Digital Circuit Physical Design Automation *Participant*, Fund for R & D Program, MST, 01/05/2022–30/04/2025 31500,000 CNY

RECENT TALKS

1. Using symbolic computation to analyze zero-Hopf bifurcations of polynomial differential systems. *48th International Symposium on Symbolic and Algebraic Computation* (ISSAC 2023), Tromsø, Norway, 24–27/07/2023

2. On the Number of Limit Cycles from Zero-Hopf Bifurcation for Certain Differential Systems. *Dynamical Systems Seminar at Institute of Mathematics (CAS)*, Beijing, China, 18/05/2022 (*online*)

3. Analysis of Zero-Hopf Bifurcation in High Dimensional Polynomial Differential Systems with Algorithm Derivation. *Computer Mathematics 2021*, Guilin, China, 4–7/06/2021

4. Algorithmic Averaging for Studying Periodic Orbits of Planar Differential Systems. *45th International Symposium on Symbolic and Algebraic Computation* (ISSAC 2020), Kalamata, Greece, 20–23/07/2020 (*online*)

5. An Algorithmic Approach to Limit Cycles of Nonlinear Differential Systems: The Averaging Method Revisited. *44th International Symposium on Symbolic and Algebraic Computation* (ISSAC 2019), Beijing, China, 15–18/07/2019

COURSES

- Mathematical Analysis, I/II/III, Beihang University

ACADEMIC POPULARIZATION

- The Mysterious Limit Cycles (in Chinese)
  http://blog.sciencenet.cn/blog-1362128-1088470.html
- The Fingerprints of God – Fractal and Chaos (in Chinese)
  http://blog.sciencenet.cn/blog-1362128-1104527.html

AWARDS

- 2022 Excellent Doctoral Dissertation of Beihang University
- 2021 Outstanding Graduate of Beijing Higher Education
- 2021 Postdoctoral Fellow of "Zhuoyue" Program
- 2019 National Scholarship for Ph.D. Students
- 2018 Supported by China Scholarship Council, No. 201806020128
- 2015 First Prize of National Graduate Mathematical Contest in Modeling

ACADEMIC ACTIVITIES

- **Committee Member** of Chinese Society of Computer Mathematics (2021–
- JOURNAL REFEREE

  European Journal of Applied Mathematics Bulletin des Sciences Mathématiques
  Journal of Symbolic Computation Journal of Systems Science and Complexity
  International Journal of Non-Linear Mechanics Differential Equations and Dynamical Systems
  Communications in Nonlinear Science and Numerical Simulation
  Qualitative Theory of Dynamical Systems Nonlinear Dynamics

REFERENCES

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Chee Yap (Member of Academia Europaea, Foreign)
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