

Zhenhua Wang

Curriculum Vitae

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Academic Positions

- 08/2023–
Current **Assistant Professor/Tenure-Track**, *Alabama A&M University*, Huntsville, Alabama.
- 06/2024–
08/2024 **Visiting Faculty**, *Oak Ridge National Laboratory*, Oak Ridge, Tennessee.
- 08/2022–
07/2023 **Limited Term Lecturer**, *The University of Georgia*, Athens, Georgia.
- 08/2019–
07/2022 **Limited Term Assistant Professor**, *The University of Georgia*, Athens, Georgia.

Education

- 09/2013–
05/2019 **Ph.D. in Mathematics**, *The University of Houston*, Houston, Texas.
Under supervision of David Blecher
- 09/2010–
06/2013 **M.S. in Mathematics**, *Jilin University*, Changchun, China.
- 09/2006–
07/2010 **B.S. in Mathematics and Applied Mathematics**, *Jilin University*, Changchun, China.

Research Interest

Functional Analysis, Jordan Operator Algebra, Operator Theory, Quantum Computing, and Quantum Information Theory.

Refereed Journal Publications

1. **Suzuki Type Estimates for Exponentiated Sums and Generalized Lie-Trotter Formulas in JB- algebras** (with S. Chehade and S. Wang), *Linear Algebra and its Applications*, **680** (2024) 156–169.
2. **Relative operator entropies and Tsallis relative operator entropies in JB-algebras** (with S. Wang), *Rocky Mountain Journal of Mathematics*, **52(3)** (2022) 1073–1087.
3. **Refined operator inequalities for relative operator entropies** (with S. Wang), *Analysis Mathematica*, **48(1)** (2022) 185–198.
4. **Operator means in JB-algebras** (with S. Wang), *Reports on Mathematical Physics*, **88** (2021) 383–398.
5. **Involutive operator algebras** (with D. P. Blecher), *Positivity*, **24** (2020) 13–53.
6. **Jordan operator algebras revisited** (with D. P. Blecher), *Math. Nachr.* **292** (2019), 2129–2136.
7. **Breathers of discrete one-dimensional nonlinear Schrödinger equations in inhomogeneous media** (with S. Ji), *Taiwanese J. Math.* **23** (2019), no. 3, 675–690.
8. **Jordan operator algebras: basic theory** (with D. P. Blecher), *Math. Nachr.* **291** (2018), 1629–1654.
9. **Roots in operator and Banach algebras** (with D. P. Blecher), *Integral Equations Operator Theory* **85** (2016), 63–90.

Submitted Journal Publications

10. **Suzuki Type Estimates for Exponentiated Sums and Generalized Lie-Trotter Formulas in Banach Algebras**, preprint (2023), <https://doi.org/10.48550/arXiv.2306.13791>.
11. **Lie-Trotter means in JB-algebras**, preprint (2023), <https://doi.org/10.48550/arXiv.2310.12857>.
12. **Error Estimates and Higher Order Trotter Product Formulas in Jordan-Banach Algebras** (with S. Chahade, A. Delgado and S. Wang), preprint (2024), <https://doi.org/10.48550/arXiv.2412.20604>.

Paper in Preparation

13. **Quantum Hunt-Stein Theorem in quantum group setting** (with S. Wang), manuscript in preparation.

Presentations and Talks

- 09/2024 **Generalized Trotter Product Formulas with Associated Error Estimations**, San Antonio, TX.
AMS Fall Central Sectional Meeting
- 03/2024 **Generalized Trotter Product Formulas and Enhanced Error Estimations**, *Oak Ridge National Laboratory*, Oak Ridge, TN.
Quantum Computational Science Group Seminar
- 11/2023 **Exploring Quantum Simulations: Generalized Lie-Trotter Formulas and Enhanced Error Estimations**, *Alabama A&M University*, Huntsville, AL.
Departmental Colloquium
- 10/2022 **Relative operator entropies in Jordan algebras**, *University of Houston*, Houston, TX.
Analysis Seminar
- 08/2022 **Jordan operator algebras and quantum information theory**, *Jilin University*, Changchun, China.
Workshop in Frontier Problems in Mathematics
- 04/2022 **Relative operator entropies in Jordan algebras**, *Minnesota State University at Mankato*, Mankato, MN.
Virtual Departmental Colloquium
- 01/2022 **Relative operator entropies in Jordan algebras**, *Sam Houston State University*, Huntsville, TX.
Departmental Colloquium
- 05/2021 **Relative operator entropies in Jordan operator algebras**, *Washington University in St. Louis*, St. Louis, MI.
Great Plains Operator Theory Symposium
- 7/2019 **Dimension theory and Jordan operator algebra**, *Texas A&M University*, College Station, TX.
Workshop in Analysis and Probability
- 5/2019 **Dimension theory**, *University of Houston*, Houston, TX.
Analysis Seminar
- 10/2018 **Noncommutative topology and operator \ast -algebra**, *Texas A&M University*, College Station, TX.
Noncommutative geometry seminar
- 10/2018 **Noncommutative topology and operator \ast -algebra**, *Baylor University*, Waco, TX.
The Texas Analysis and Mathematical Physics Symposium

- 07/2018 **Real positivity in Jordan operator algebras**, *East China Normal University*, Shanghai, China.
International Workshop on Operator Theory and its Applications
- 05/2018 **Introduction to operator *-algebras**, *Miami University*, Oxford, OH.
Great Plains Operator Theory Symposium
- 03/2018 **Introduction to Jordan operator algebras**, *Baylor University*, Waco, TX.
Brazos Analysis Seminar
- 10/2017 **Introduction to Jordan operator algebras**, *University of Houston*, Houston, TX.
Analysis Seminar
- 04/2017 **Jordan operator algebras with contractive approximate identities**, *University of Houston*, Houston, TX.
Graduate Students Paper Presentations

Journal Referee

- Contemporary Mathematics
- Communications of the Korean Mathematical Society
- Extracta Mathematicae
- Filomat
- Houston Journal of Mathematics
- International Mathematics Research Notices
- Journal of Mathematical Analysis and Applications
- Journal of Mathematical Physics
- Khayyam Journal of Mathematics

Teaching Experience

Alabama A&M University

- 8/23–now **Instructor for Calculus I, Calculus II and Calculus III.**
Carried full responsibility of teaching face to face Calculus I, Calculus II and Calculus III.

University of Georgia

- 8/19–7/23 **Instructor for Calculus I, Calculus III and Pre-Calculus.**
Carried full responsibility of teaching fully online Calculus I, face to face Calculus I, Calculus III and Pre-Calculus courses.

University of Houston

- 01/19–05/19 **Temporary Teaching Assistant for graduate level of functional analysis course.**
Taught some special topics in functional analysis class.
- 01/19–05/19 **Teaching Assistant for graduate level of real analysis.**
Took full responsibility of teaching graduate level of real analysis problem session.
- 08/17–12/18 **Instructor of Record for Calculus for Business and the Life Sciences.**
Carried full responsibility of teaching Calculus for Business and the Life Sciences.
- 09/13–05/17 **Teaching Assistant for Calculus I, II and III, Differential Equations, Linear Algebra, Complex Analysis, Probability, and Statistics.**
Held recitation sessions and provided one-on-one tutoring to students for the following entry-level to advanced math courses: Calculus I, II, III, Differential Equations, Linear Algebra, Complex Analysis, Probability, and Statistics.

Awards

- 2019-2022 Franklin College of Arts and Sciences at UGA Travel Grant
- 2019 Michael L. McLellan Scholarship

- 2013–2019 Doctoral Student Tuition Fellowship
- 2019 Travel Grant for International Workshop on Operator Theory and its Applications
- 2010–2013 Graduate Student Scholarship
- 2009 First Prize in Mathematical Contest in Modeling of Jilin University
- 2009 Outstanding Undergraduate Student Scholarship
- 2008 Outstanding Undergraduate Student Scholarship

Service

Alabama A&M University

- 2023– **Undergraduate advisor.**
- 2024– **Undergraduate research mentor.**

University of Georgia

- 10/2022 **Volunteer for UGA High School Math Tournament.**
- 2020–2022 **Undergraduate research mentor.**
- 2020–2021 **Organizer of functional analysis seminar .**
- 2019–2023 **Member of Mathematics Active Learning Team.**
Develop active learning techniques, Student Learning Outcomes, Assessment, Equity and Inclusion, Course mapping, etc.

University of Houston

- 2017–2019 **Treasurer of UH SIAM Graduate Student Chapter**, <http://www.math.uh.edu/uhsiam/>.
Monitor budget. Keep a record of all transactions. Construct industrial and academic seminars to students.
- 2015–2018 **President of Chinese Christian Fellowship at UH.**
Preside over meetings of the organization. Develop and organize events.

Languages

- Mandarin **Mother tongue**
- English **Fluent with high proficiency**

References

- David Blecher **Professor**, *University of Houston*.
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+1 (713)-743-3451
- Shuzhou Wang **Associate Professor**, *University of Georgia*.
szwang@uga.edu
+1 (706)-542-0884
- Congxiao Liu **Associate Professor**, *Alabama A&M University*.
cong Xiao.liu@aamu.edu
+1 (256)-372-4177
- Enka Lakuriqi **Senior Lecturer**, *University of Georgia*.
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