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Basic Information

- **Research interests:** Algebra, representation theory, Lie theory, Coxeter groups.

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- **Tel./WeChat:** $= (86)\ 18800000000 + 50287585$

- **Homepage:** https://huhongsheng.github.io

- **Language:** Chinese (native). English.

- **Birth:** May 16, 1994. Zhangzhou, Fujian Province, China.

- **Other information:** Male. Married. Political status: masses.

Education and Working Experiences

- Since Jun. 2024. Assistant professor.
  School of Mathematics, Hunan University. Changsha, Hunan Province, China.

- Jul. 2022 – Jun. 2024. Postdoc.
  Beijing International Center for Mathematical Research, Peking University. Beijing, China.
  Mentor: Xiang Fu.

- Feb. 26, 2019 – Aug. 26, 2019. Visiting graduate student.
  University of California, Riverside. California, USA. Host professor: Carl Mautner.
  Funding: China Scholarship Council. No. 201804910559.

- Sep. 2016 – Jun. 2022. Ph.D.
  Academy of Mathematics and Systems Science, Chinese Academy of Sciences. Beijing, China.
  Major in Fundamental Mathematics.
  Supervisor: Nanhua Xi.

- Sep. 2012 – Jun. 2016. B.S.
  Fudan University. Shanghai, China. Major in Mathematics and Applied Mathematics.

- Sep. 2009 – Jun. 2012. Zhangzhou No. 1 High School of Fujian. Zhangzhou, Fujian, China.

- Sep. 2006 – Jun. 2009. Zhao'an Huai'en Middle School. Zhangzhou, Fujian, China.

- Sep. 2000 – Jun. 2006. Zhao'an Experimental Primary School. Zhangzhou, Fujian, China.

Ph.D. Dissertation (in Chinese)

- Title: Coxeter 群的 "反射" 表示. ("Reflection" representations of Coxeter groups.)

Papers and Preprints (sort by manuscript completion time)

- Weyl group symmetries of the toric variety associated with Weyl chambers.

j.w. Tao Gui and Minhua Liu. Online, Bull. Lond. Math. Soc., 2025.

- On exterior powers of reflection representations, II.
Online, Canad. J. Math., 2025.

- Asymptotic log-concavity of dominant lower Bruhat intervals via Brunn–Minkowski inequality.
j.w. Gaston Burrull and Tao Gui. arXiv preprint. 2024.

- Asymptotic log-concavity of dominant lower Bruhat intervals via Brunn–Minkowski inequality.
j.w. Gaston Burrull and Tao Gui. Extended abstract in FPSAC 2024 proceedings.
Sém. Lothar. Combin. 91B (2024), Art. 94, 12 pp.

- Strongly dominant weight polytopes are cubes.
j.w. Gaston Burrull and Tao Gui. arXiv preprint. 2024.

- Representations of Coxeter groups of Lusztig's a-function value 1.
arXiv preprint. 2023.

- On exterior powers of reflection representations.
Bull. Aust. Math. Soc. 110 (2024), no. 1, 90–102.

- Reflection representations of Coxeter groups and homology of Coxeter graphs.
Algebr. Represent. Theory 27 (2024), no. 1, 961–994.

- 最小二乘解与高斯消元法的注记.
(A note on least squares solutions and Gaussian eliminations.)
Teaching paper, in Chinese. 大学数学 (College Mathematics), 2024, 40(4):59–62.

- Some infinite-dimensional representations of certain Coxeter groups.
Ann. Comb. 29 (2025), no. 1, 101–115.

Teaching

- Since 2024. Hunan University. Linear Algebra A, Advanced Algebra B.

- 2016 – 2022. University of Chinese Academy of Sciences. Linear Algebra A (teaching assistant), Algebra (teaching assistant), Linear Algebra B (teaching assistant).

Professional Activities

- Since Jun. 2024. Reviewer for Mathematical Reviews.
- Since Dec. 2021. Reviewer for zbMATH Open.

Funding

- Since Jun. 2024. Fundamental Research Funds for the Central Universities. No. 531118010972.
- Feb. 2019 – Aug. 2019. China Scholarship Council. No. 201804910559.

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