

Hong Yi Huang

☎ +44 (0)7579956791 or +86 13530464479

✉ 11612012@mail.sustech.edu.cn or hy.huang@st-andrews.ac.uk

🌐 hongyihuang328.github.io

School of Mathematics and Statistics, University of St Andrews, St Andrews KY16 9SS, UK

Research interests

- Group theory (permutation groups, simple groups, algebraic groups)
- Algebraic combinatorics
- Representation theory

Employment

LMS Early Career Research Fellow, University of St Andrews, United Kingdom

from Apr 2025

- Academic host: Professor Colva Roney-Dougall
- Financial support: London Mathematical Society & Heilbronn Institute for Mathematical Research

Education

University of Bristol (UoB), United Kingdom

Jan 2021 – Mar 2025

- PhD in Mathematics
- Supervisor: Professor Tim Burness
- Funding: China Scholarship Council
- Thesis: *Bases for permutation groups and related problems*

Southern University of Science and Technology (SUSTech), China

Sept 2016 – July 2020

- Bachelor of Science
- Major: Mathematics and Applied Mathematics
- Supervisor: Professor Cai Heng Li
- Thesis: *On valency problems of $Saxl$ graphs of almost simple primitive groups with soluble stabiliser*

Distinctions

LMS Early Career Fellowship (6 fellows in 2025)	2025
Oberwolfach Leibniz Graduate Students grant, Mathematical Research Institute Oberwolfach	2025
Alumni Grant: Conference Travel Fund (£300), UoB	2024
China Scholarship Council (full PhD scholarship at UoB)	2021–25
Outstanding undergraduate thesis, SUSTech	2020
First-class scholarship, SUSTech	2017–18
First prize, Chinese Mathematics Competition (Guangdong)	2017

Last updated: 10 August 2025

Journal publications and preprints

- [9] T.C. Burness and H.Y. Huang, *On the intersections of nilpotent subgroups in simple groups*, submitted (2025), 37 pp. arxiv:2508.03479
- [8] T.C. Burness and H.Y. Huang, *On the intersections of Sylow subgroups in almost simple groups*, submitted (2025), 26 pp. arxiv:2506.19745
- [7] S.D. Freedman, H.Y. Huang, M. Lee and K. Rekvényi, *On the generalised Saxl graphs of permutation groups*, submitted (2024), 35 pp. arxiv:2410.22613
- [6] H.Y. Huang, C.H. Li and Y.L. Xie, *Fixers and derangements of finite permutation groups*, **J. Algebraic Combin.** 61 (2025), Paper No. 57, 44 pp. doi:10.1007/s10801-025-01425-3
- [5] H.Y. Huang, C.H. Li and Y.Z. Zhu, *On finite permutation groups of rank three*, **J. Algebra** 666 (2025), 703–732. doi:10.1016/j.jalgebra.2024.11.028
- [4] H.Y. Huang, *Base sizes of primitive groups of diagonal type*, **Forum Math. Sigma** 12 (2024), Paper No. e2, 43 pp. doi:10.1017/fms.2023.121
- [3] T.C. Burness and H.Y. Huang, *On base sizes for primitive groups of product type*, **J. Pure Appl. Algebra** 227 (2023), Paper No. 107228, 43 pp. doi:10.1016/j.jpaa.2022.107228
- [2] T.C. Burness and H.Y. Huang, *On the Saxl graphs of primitive groups with soluble stabilisers*, **Algebr. Comb.** 5 (2022), 1053–1087. doi:10.5802/alco.238
- [1] J. Chen and H.Y. Huang, *On valency problems of Saxl graphs*, **J. Group Theory** 25 (2022), 543–577. doi:10.1515/jgth-2021-0123

Conference & seminar organisation

26th Postgraduate Group Theory Conference (PGTC), UoB

July 2025

- With Marina Anagnostopoulou-Merkouri, Pénélope Azuelos, David Guo, Merlin Haith Rowlett and Sarah Martin
- Funded by the London Mathematical Society, the Heilbronn Institute for Mathematical Research, Jane Street Capital, and the School of Mathematics of UoB
- Website: <https://sites.google.com/view/pgtc2025>

Bristol Junior Algebra and Combinatorics Seminar (BJACS), UoB

Feb–May 2024

- Founding co-organiser
- With Marina Anagnostopoulou-Merkouri and Merlin Haith Rowlett
- Website: <https://sites.google.com/view/bjacs>

4th International Conference on Groups, Graphs and Combinatorics, SUSTech

Nov 2023

- With a group of people led by Cai Heng Li

Seminars on Groups and Graphs, SUSTech (online)

2021–24

- Founding co-organiser
- With Zhaochen Ding (2021–24), Yilin Xie (2021–23), Junyan Chen (2024) and Fu-Gang Yin (2024)
- Website: <https://www.gtseminar.xyz/>

Conference invitations

<i>Finite Groups, Fusion Systems and Applications</i> , Mathematical Research Institute Oberwolfach	Mar 2025
<i>Young Group Theorists Workshop</i> , SwissMAP, Les Diablerets, Switzerland	Sept 2022

Invited talks & seminars

2025

<i>Permutation groups, transitive subgroups and bases</i> , Pure Maths Colloquium, University of St Andrews	17 Apr
<i>Permutation groups, symmetry breaking and probability</i> , Great Bay University	26 Feb
<i>Permutation groups, symmetry breaking and probability</i> , Guangxi University	25 Feb

2024

<i>Permutation groups, symmetry breaking and probability</i> , Zhejiang University	24 Dec
<i>Bases and Saxl graphs in the past four years</i> , Discrete Mathematics Seminar, SUSTech	12 Dec
<i>Bases and Saxl graphs for permutation groups</i> , BJACS, UoB	18 Sept
<i>Bases for permutation groups</i> , University of Milano-Bicocca, Italy	6 Sept
<i>Permutations, bases and low rank groups</i> , Joint Algebra Seminar, RWTH Aachen	13 June
<i>Permutations, bases and low rank groups</i> , Advanced Seminar on Group Theory, HHU Düsseldorf	11 June
<i>Permutations, bases and low rank groups</i> , Seminar Groups and Representations, Kaiserslautern-Landau	6 June
<i>Permutations, bases and low rank groups</i> , Algebra Seminar, UoB	19 Mar
<i>Bases for permutation groups</i> , Algebra Seminar, University of Warwick	29 Jan

2023

<i>Bases for permutation groups</i> , Algebra Seminar, University of Birmingham	30 Nov
<i>Symmetry breaking on graphs and groups</i> , Seminars on Discrete Mathematics, Xiamen University	26 Sept
<i>Permutation groups: bases and Saxl graphs</i> , Capital Normal University	16 Sept
<i>Bases for permutation groups</i> , SUSTech	7 Sept
<i>Bases for permutation groups</i> , Junior London Algebra Colloquium, Imperial College London	23 Mar

2022

<i>Bases, distinguishing partitions and probabilistic methods</i> , The University of Melbourne (online)	18 Aug
--	--------

2021

<i>Groups, graphs and transitivity</i> , Junior Algebra Colloquium, UoB (online)	21 May
<i>The probabilistic method in group theory</i> , Discrete Mathematics Seminar, SUSTech	22 Apr

2020

<i>On valency problems of Saxl graphs</i> , Discrete Mathematics Seminar, SUSTech	26 Nov
---	--------

Other talks

2025

<i>Transitive subgroups of primitive groups</i> , Mathematical Research Institute Oberwolfach, Germany	20 Mar
<i>Regular subgroups of primitive groups</i> , Groups, Graphs and Combinatorics, Kunming	12 Jan

2024

<i>The generalised Saxl graphs of finite permutation groups</i> , Topics in Group Theory, Padova, Italy	11 Sept
<i>Permutation groups of rank three</i> , Group Theory in Florence IV, Florence, Italy	2 July

2023

<i>Bases for permutation groups</i> , 16th National Conference on Algebra, Quanzhou	18 Nov
<i>Bases for permutation groups</i> , 4th International Conference on Groups, Graphs and Combinatorics	11 Nov
<i>Symmetry breaking on primitive groups</i> , Seminars on Groups and Graphs, SUSTech	4 Mar

2022

<i>Base-two primitive permutation groups</i> , Young Group Theorists Workshop, SwissMAP, Les Diablerets	5 Sept
<i>Base-two primitive permutation groups</i> , Groups St Andrews, Newcastle, UK	4 Aug
<i>Base-two primitive permutation groups and their Saxl graphs</i> , Groups and Graphs	24 July
<i>Base-two primitive permutation groups</i> , 23rd Postgraduate Group Theory Conference	8 July
<i>Bases for primitive permutation groups</i> , Group Theory Seminar, SUSTech	24 May
<i>Regular orbits of primitive groups on power sets</i> , Group Theory Seminar, SUSTech	19 Feb

2021

<i>Base-two primitive permutation groups and their Saxl graphs</i> , 43rd Australasian Combinatorics Conference	13 Dec
<i>Regular suborbits of finite primitive groups</i> , Groups, Graphs and Combinatorics	14 Nov
<i>Base-two primitive permutation groups and their Saxl graphs</i> , LMS Graduate Student Meeting	8 Nov
<i>The distinguishing number of permutation groups</i> , Group Theory Seminar, SUSTech	9 Oct
<i>On valency problems of Saxl graphs</i> , Workshop on Group Actions and Transitive Graphs	2 Jan

2020

<i>On valency problems of Saxl graphs</i> , SUSTech	17 Nov
---	--------

Other conferences

2025

<i>Groups, Graphs and Combinatorics</i> , Yunnan University, Kunming, China	Jan
---	-----

2024

<i>Topics in Group Theory</i> , University of Padova	Sept
<i>Group Theory in Florence IV</i> , University of Florence	July
<i>New perspectives in Computational Group Theory</i> , University of Warwick	June

2023

<i>16th National Conference on Algebra</i> , Quanzhou, China	Nov
<i>International Conference on Combinatorics and Finite Geometry</i> , SUSTech	Sept
<i>CMI-HIMR Summer School: Probabilistic Group Theory</i> , UoB	June
<i>Fry Conference Series: New Perspectives in Pure Mathematics</i> , UoB	Mar

2022

<i>Groups St Andrews</i> , Newcastle University	Aug
<i>Simple groups, Representations and Applications</i> , Isaac Newton Institute, University of Cambridge	July
<i>Groups and Graphs</i> , Jiangxi University of Science and Technology (online)	July
<i>23rd Postgraduate Group Theory Conference</i> , London	July

2021

<i>43rd Australasian Combinatorics Conference</i> , The University of Melbourne (online)	Dec
<i>Groups, Graphs and Combinatorics</i> , SUSTech (online)	Nov
<i>LMS Graduate Student Meeting</i> , London Mathematical Society (online)	Nov
<i>Workshop on Group Actions and Transitive Graphs</i> , Kunming, China	Jan

Before 2020

Workshop on Combinatorics and Graph Theory, SUSTech

Oct 2020

International Conference on Algebraic Combinatorics, Jiaozuo, China

Sept 2019

The Third International Conference on Group Actions and Transitive Graphs, SUSTech

Oct 2018

Teaching

Tutorial leader, School of Mathematics, UoB

- 2023–2024 Teaching Block 2: MATH10010 Introduction to Group Theory (3 tutorial groups)
- 2021–2022 Teaching Block 1: MATH10010 Introduction to Proofs (3 tutorial groups)

Teaching assistant, Department of Mathematics, SUSTech

- 2019–2020 Spring: MA109 Advanced Linear Algebra (1 out of 3 tutorial groups)
- 2019–2020 Fall: MA107 Advanced Linear Algebra I (2 out of 2 tutorial groups)
- 2018–2019 Spring: MA104b Linear Algebra II (1 out of 4 tutorial groups)

Homework marker, Department of Mathematics, SUSTech

- 2020–2021 Spring: MA321 Group Representation Theory, and MA219-16 Elementary Number Theory
- 2019–2020 Fall: MA321 Group Representation Theory, and MA219 Abstract Algebra (H)
- 2018–2019 Spring: MAT8010 Combinatorics (PG)
- 2017–2018 Fall: MA219-16 Elementary Number Theory, and MA213-16 Mathematical Analysis

Research visits

2025: Warwick (1 day, hosted by Sean Eberhard and Gareth Tracey); Great Bay University (1 day, Weicong Li); Guangxi University (1 day, Huye Chen); Yunnan University (1 week, Lei Wang)

2024: Zhejiang University (1 week, Tao Feng); SUSTech (1 week, Cai Heng Li); Milano-Bicocca (3 days, Pablo Spiga); Warwick (1 day, Gareth Tracey); RWTH Aachen (3 days, Alice Niemeyer); HHU Düsseldorf (2 days, Benjamin Klopsch); Kaiserslautern-Landau (1 week, Gunter Malle); Imperial College London (3 days, Kamilla Rekvényi)

2023: Xiamen University (1 week, Jiyong Chen); Capital Normal University (1 week, Shaofei Du); SUSTech (1 month, Cai Heng Li)

2021: SUSTech (2 months, Qing Xiang)

2020: SUSTech (6 months, Cai Heng Li)

Professional activities

- Refereeing assignments: J. Algebra, European J. Combin., J. Group Theory
- Reviewer for AMS Mathematical Reviews (3 reviews)
- Associate member of the London Mathematical Society
- Member of the Combinatorial Mathematics Society of Australasia

since 2023

2024–25

2022