Yao Ming (Brian) Chan

Personal Information

Mobile: +44 7818 638 289
Email: brichan17@gmail.com
Date of birth: November 17th 1999
Place of birth: Ipoh, Malaysia
Nationality: Australian
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Education

10/2023–Now **DPhil Mathematics**
University of Oxford
Supervisor: Professor Stuart White

03/2021–11/2022 **MSc. Master of Science (Mathematics and Statistics)**
University of Melbourne
Major: Pure Mathematics
Thesis: Wedge product matrices and applications

Wedge product matrices are developed as a generalisation to the determinant of a square matrix with entries in a commutative ring. In tandem with a method Robert Steinberg used to prove a variant of the Bruhat decomposition, the two ideas were applied to various problems in linear algebra. Notably, they were used to generalise the eigenvector-eigenvalue identity and the notion of a quasideterminant in a non-commutative ring. They were also applied to the construction of representatives of two different matrix orbit spaces.

Supervisor: Professor Arun Ram

03/2018–11/2020 **BSc. Bachelor of Science**
University of Melbourne
Major: Mathematics and Statistics
Specialisation: Pure Mathematics

Teaching

2025 **Teaching assistant for Functional Analysis II B4.2**

Prepared for and taught one set of classes (four classes total) with the class tutor. Also marked the students' submitted work before each class.

2023, 2024 **Teaching assistant for Functional Analysis I B4.1**

Prepared for and taught one set of classes (four classes total) with the class tutor. Also marked the students' submitted work before each class.

Achievements

2021, 2022 **Mathematics and Statistics Masters Scholarship**

Three payments of $2000 corresponding to the first three semesters of the Master of Science degree in recognition of consistent academic achievement throughout the degree.

2018, 2019 **Dean's Honours List**

Awarded for an average mark which lies in the top 3% of students in the Bachelor of Science degree.

Preprints and publications

1. Y. Chan. *Wedge product matrices and orbits of principal congruence subgroups*, Lin Alg App. **696**, 2024, Pages 1-28.

Talks delivered at conferences

21/07/2025 YMC*A, University of Southern Denmark, Odense.

Gave a three minute talk titled "Cuntz semigroups and graph C*-algebras".

04/07/2025 UK Operator Algebras Conference, Queen's University Belfast.

Gave a five minute talk titled "Cuntz semigroups and graph C*-algebras".

03/04/2025 Young Functional Analysts' Workshop, University of Glasgow.

Gave a twenty minute talk titled "Nuclear dimension, extensions and graph C*-algebras".

12/06/2024 UK Operator Algebras Conference, Newcastle University, Newcastle upon Tyne.

Gave a five minute talk titled "Nuclear dimension and graph C*-algebras".

Skills

Coding experience with Python

2021 **Quantum chemistry project for the subject COMP90072**

Used NumPy to implement the Hückel method in order to model the energy levels, electron densities and bond orders of conjugated organic molecules. The Hartree-Fock method was also implemented to compute the orbital energies of small atoms with occupied 1s and 2s orbitals and diatomic molecules comprised of these atoms.

Languages

English (Native)

References

Professor Arun Ram (MSc supervisor)
Institute: University of Melbourne
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