Tsung-Hsuan TSAI

Birth: 13 April 1996
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RESEARCH INTEREST

● Random groups ● Geometric group theory ● Small cancellation theory

RESEARCH EXPERIENCE

2019 - 2022	**Institut de Recherche Mathématique Avancée, Strasbourg, France** Ph.D. in Mathematics, supervised by Thomas Delzant Thesis: *Phase transitions in random group: free subgroups and van Kampen 2-complexes*
2019.05 - 06	**Institut de Recherche Mathématique Avancée, Strasbourg, France** Research internship M2, supervised by Thomas Delzant Subject: *Random groups: the binomial triangular model*
2018.06 - 07	**Université de Padova, Padova, Italie** Research internship M1, supervised by Remke Kloosterman Subject: *Fundamental groups of complements of singular algebraic curves*
2017.05 - 06	**Laboratoire de Mathématiques Jean-Leray, Nantes, France** Research internship L3, supervised by François Laudenbach Subject: *Algebraic topology and applications: Schreier Theorem and Poincaré paving*

EDUCATION

2019 - 2022	**Université de Strasbourg, France** Ph.D. in Mathematics, supervised by Thomas Delzant
2016 - 2019	**École normale supérieure de Rennes, France** Normalien à titre étranger M.Sc. in Mathematics at Université de Rennes 1, 2019 B.Sc. in Informatics at Université de Rennes 1, 2018 B.Sc. in Mathematics at Université de Rennes 1, 2017
2014 - 2016	**Lycée Janson de Sailly, Paris, France** Classe préparatoire aux grandes écoles, MPSI and MP

Teaching

2019 - 2022 **Université de Strasbourg, France**
Teaching assistant

2019,2020,2021 autumn: TD Algèbre S5 (exercise sessions of the course Introduction to group theory for 3rd year).

2020,2021,2022 spring: CI Math pour les sciences 2 (lecturer of the course Basic linear algebra for 1st year).

Publications and Preprints

2021 T.-H. Tsai, *Density of random subsets and the intersection formula.*
Preprint arxiv: 2104.09192.
Accepted for publication in the *Journal of Combinatorial Algebra,*
DOI: 10.4171/JCA/63.

2021 T.-H. Tsai, *Freiheitssatz and phase transitions for the density model of random groups.*
Preprint arxiv: 2111.08958.

Talks

2021.12.17 **Topology seminar, Institut Fourier, Grenoble, France.**
Freiheitssatz for the density model of random groups.

2021.12.14 **ENS Group theory seminar, Paris, France (Online).**
Freiheitssatz for the density model of random groups.

2021.12.06 **Ergodic theory seminar, IRMAR, Rennes, France.**
Freiheitssatz for the density model of random groups.

2021.09 **Séminaire Doctorant, IRMA, Strasbourg, France.**
Groupes à petite simplification et un théorème de non-torsion.

2020.10 **Séminaire Doctorant, IRMA, Strasbourg, France.**
La plupart des groupes sont hyperboliques.

2020.02 **Séminaire Doctorant, IRMA, Strasbourg, France.**
Ensembles aléatoires : définitions et applications à théorie des groupes.

Languages

• English • French • Mandarin Chinese • Taiwanese