

I am a PhD graduand at Royal Holloway, University of London, working under Brita Nucinkis. I hold an MMath from The University of Southampton, with my master's thesis supervised by Bernhard Koeck. My research interests include finiteness properties and other geometric properties of infinite groups, including Thompson and Bieri-Strebel groups, as well as TDLC groups such as Neretin's group. I am particularly interested in methods of calculating the BNSR Invariant. I successfully defended my thesis in November 2025.

Publications and Preprints

MARCH 2024 – NEW YORK JOURNAL OF MATHEMATICS

The Sigma Invariants for the Golden Mean Thompson Group/ Joint with Brita Nucinkis and Yuri Santos Rego

We use a method of Bieri, Geoghegan and Kochloukova to calculate the BNSR-invariants for the irrational slope Thompson's group F_t . To do so we establish conditions under which the Sigma invariants coincide with those of a subgroup of finite index, addressing a problem posed by Strebel.

[ARXIV](#) – [JOURNAL LINK](#)

FEBRUARY 2026

Tree Pairs for Algebraic Bieri-Strebel Groups

We reintroduce a previously discovered method for constructing tree pair representations for Algebraic Bieri-Strebel groups, as well as demonstrate a class of higher order groups that cannot have a tree pair representation. In doing so, we demonstrate that there is no maximum degree such that for all polynomials of higher degree, the associated Algebraic Bieri Strebel group must have a tree-pair representation.

[ARXIV](#)

Talks Given

JUNE 2024 – MILAN, ITALY

Cubulation of Algebraic Bieri-Strebel Groups / GABY 2024

A talk focused on constructing an analogue of the Stein-Farley cube complex that is compatible with a free action by certain quadratic Bieri-Strebel groups.

APRIL 2024 – BRISTOL, UK

Thompson-Like Groups / Young Geometric Group Theory XII

A discussion session on basic properties of Thompson-like groups, including tree-pair diagrams and finiteness properties

FEBRUARY 2024 – BRISTOL, UK

Introduction to BNSR Invariants / Bristol Junior Geometry Seminar

A seminar talk on the definition and basic properties of the BNSR invariant.

NOVEMBER 2023 – OBERWOLFACH, GERMANY

Finiteness Properties of Bieri-Strebel Groups / Homological Aspects of TDLC Groups

A talk focused on the application of Brown's criterion to a generalized Cleary complex in order to demonstrate the F_∞ property for certain quadratic Bieri-Strebel groups.

SEPTEMBER 2023 – MAGDEBURG, GERMANY

Finiteness Properties of Bieri-Strebel Groups / Groups of Thompson and Their Relatives

As above

JUNE 2023 – EDINBURGH, UK

Simplicial Complexes for Irrational Slope Thompson Groups/Postgraduate Group Theory Conference 2023

A talk focused on the construction of a generalized Cleary complex for a class of quadratic Bieri-Strebel groups.

APRIL 2023 – LANCASTER, UK

BNSR Invariants and Finite Index / Functor Categories of Groups

A talk focused on a new technique for calculating the BNSR invariant for a group by calculating the BNSR invariant of a finite-index subgroup.

Conferences Attended

JUNE 2024 – BRISTOL, UK

Modern Methods in Infinite Group Theory

Poster Presented: "Reconstructing the Stein-Farley Cube Complex for Algebraic Bieri-Strebel Groups"

MARCH 2024 – BIELEFELD, GERMANY

Topological and Homological Methods in Group Theory

AUGUST 2023 – SOUTHAMPTON, UK

Early Career Symposium for the Topology, Actions, and Symmetry

MAY 2023 – MONTREAL, CANADA

Geometry of Subgroups

FEBRUARY 2023 – MUNSTER, GERMANY

Young Geometric Group Theorists XI

JANUARY 2023 – SOUTHAMPTON, UK

LMS South West Regional Meeting

JULY 2022 – LONDON, UK

Postgraduate Group Theory Conference 2022

Education

PhD / Royal Holloway, University of London

Thesis Title: "Finiteness and Cubulative Properties of Algebraic Bieri-Strebel Groups". Supervisor: Brita Nucinkis. Thesis defended November 14th 2025. Pass with minor corrections.

MMath Mathematics (First Class) / University of Southampton

Dissertation Title; "The Hasse Principle". Supervisor: Bernhard Koeck

References

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Prof. Matthew Zaremsky / Associate Professor, State University of New York, Albany

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