

LIAM STUART

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EDUCATION

University of St. Andrews PhD 2019-Present

I am currently studying for my PhD funded by the University of St. Andrews which is being supervised by Professor. Jonathan Fraser and Regius Professor Kenneth Falconer. My research is currently focused on fractal geometry, in particular the dimension spectra of limit sets of geometrically finite Kleinian groups and Julia sets of parabolic rational maps.

University of St. Andrews MMath Mathematics 2015-2019

First Class Honours Degree

Modules included:

- Fractal Geometry (19.0)
- Real and Abstract Analysis (19.0)
- Lie Algebras (19.6)
- Groups (19.8)

Honours Average: 18.0

Final Year Project (19.0): The Kakeya Problem and Related Conjectures:

An exploration of the Kakeya conjecture, including partial results and a detailed look at analogues of the conjecture, also involving research into the methods used.

Supervisor: Professor. Jonathan Fraser

Open University 2013-2015

Modules:

- Exploring Mathematics (Distinction)
- Pure Mathematics (Distinction)

Millburn Academy 2009-2015

Advanced Highers: Mathematics (A), Chemistry (A), Physics (A)

PUBLICATIONS

- Refined horoball counting and conformal measure for Kleinian group actions (with Jonathan M. Fraser). Preprint.
- Assouad type dimensions of parabolic Julia sets (with Jonathan M. Fraser). Preprint.
- The Assouad spectrum of Kleinian limit sets and Patterson-Sullivan measure (with Jonathan M. Fraser). Preprint.
- A new perspective on the Sullivan dictionary via Assouad type dimensions and spectra (with Jonathan M. Fraser). Preprint.

WORK EXPERIENCE

Mathematics Tutor, School of Mathematics and Statistics, University of St. Andrews, Autumn 2019-Present

I have currently done tutoring for the following modules at St. Andrews:

- MT1002 - Mathematics
- MT2502 – Analysis
- MT2505 – Abstract Algebra

Student feedback regarding tutoring is divided into 4 categories

- The class/activity was well organised (organisation)
- The significance of the class/activity for the module was clear (significance)
- The material used in the class/activity was well explained (explanation)
- I was able to contact the staff member if I needed to (availability)

Each category is rated on a scale of 1-5, with 1 being the best.

	organisation	significance	explanation	availability
MT2502 (Autumn 2019)	1.5	1.61	1.39	1.33
MT2505 (Spring 2020)	-	-	-	-
MT2502 (Autumn 2020)	1.75	1.69	1.81	1.75
MT1002 (Spring 2021)	2.07	1.87	1.87	1.8
MT2502 (Autumn 2021)	1	1	1	1
MT1002 (Spring 2022)	1.5	1.5	1.5	1.5

Teaching Assistant at Millburn Academy, May 2016- July 2016

Duties included assisting students of various levels with their mathematical studies whilst being supervised by the classroom teachers.

Marked work of students during classroom periods.

CONFERENCE/WORKSHOPS ATTENDED

- Postgraduate Interdisciplinary Mathematical Symposium (PIMS), The Burn (Edzell), UK, 11/04/22-13/04/22
- Junior Ergodic Theory Meeting, Edinburgh, UK, 28/03/22-31/03/22

- Postgraduate Interdisciplinary Mathematical Symposium (PIMS), The Burn (Edzell), UK, 29/1/20-31/2/20
- Fractals workshop, University of St. Andrews, 02/09/19

TALKS GIVEN

- Analysis group intro: Edzell, Postgraduate Interdisciplinary Mathematical Symposium (PIMS), 11/04/22
- Refined horoball counting for Kleinian group actions: Edinburgh, Junior Ergodic Theory Meeting, 30/03/22
- Refined horoball counting for Kleinian group actions: University of St. Andrews, Pure Postgraduate Seminar, 28/02/22
- Refined horoball counting for Kleinian group actions: University of St Andrews, Analysis Seminar, 16/11/21
- Sullivan's dictionary and Assouad-type dimensions: Bristol (Online), 03/06/21
- A perspective on Sullivan's dictionary via Assouad-type dimensions: Pure Postgraduate Seminar, St. Andrews (Online), 15/02/21
- Limit sets of Kleinian Groups: Postgraduate Interdisciplinary Mathematical Symposium (PIMS) (Online), 26/01/21
- The Sullivan dictionary from the perspective of dimension theory: University of St. Andrews, Analysis Seminar, 06/10/20
- The Assouad spectrum of Kleinian limit sets: University of St. Andrews, Analysis Seminar, 25/02/20
- Kleinian Limits Sets: University of St. Andrews, Pure Postgraduate Seminar, 17/02/20
- Hyperbolic Geometry and Limit Sets: University of St. Andrews, Research Day, 23/01/20

REVELANT SKILLS

Computing Skills: LaTeX and Python mathematics software

Microsoft Office (Word, Powerpoint, Excel)