LIAM STUART

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EMPLOYMENT

SEPTEMBER 2023 – PRESENT
TEACHER OF MATHEMATICS, ELITE TUITION
Currently working part-time as an online maths tutor, assisting A-Level Mathematics students in their studies and furthering their academic development.

SEPTEMBER 2022 – MARCH 2023
RESEARCH FELLOW IN MATHEMATICS, UNIVERSITY OF ST ANDREWS
Recently an EPSRC funded Research Fellow and part of the analysis research group at the University of St Andrews. My research is focused on fractal geometry and dynamical systems, with a particular interest in hyperbolic geometry and complex dynamics.

EDUCATION

SEPTEMBER 2019 – OCTOBER 2022
PHD IN MATHEMATICS, UNIVERSITY OF ST ANDREWS
Thesis title: Limit sets, Julia sets and Sullivan's dictionary: a dimension theoretic analysis.
Topic: Fractal geometry, dimension theory, hyperbolic geometry, complex dynamics.
Supervisors: Professor Jonathan Fraser (primary), Regius Professor Kenneth Falconer.
Fully funded by the University of St Andrews.

SEPTEMBER 2015 – JUNE 2019
MMATH MATHEMATICS, UNIVERSITY OF ST ANDREWS
First Class Honours Degree
Honours Average: 18.0 (Graded on a scale of 1-20). Appeared on Deans' List for academic excellence every year.
Final Year Project (19.0): The Kakeya Problem and Related Conjectures.
Supervisor: Professor Jonathan Fraser.

PUBLICATIONS

PUBLISHED:

1. A new perspective on the Sullivan dictionary via Assouad type dimensions and spectra (with Jonathan M. Fraser). **Bulletin of the American Mathematical Society, 61 (1), 103-118.** 16 pages.

2. Refined horoball counting and conformal measure for Kleinian group actions (with Jonathan M. Fraser). **Annales Fennici Mathematici, 48 (1), 325-344.** 20 pages.

3. The Assouad spectrum of Kleinian limit sets and Patterson-Sullivan measure (with Jonathan M. Fraser). **Geometriae Dedicata, 217, 1.** 32 pages.

SUBMITTED:

4. Assouad type dimensions of parabolic Julia sets (with Jonathan M. Fraser). Preprint, available at arXiv:2203.04943, 26 pages.

EXPERIENCE

SEPTEMBER 2019 – DECEMBER 2022

MATHEMATICS TUTOR, UNIVERSITY OF ST ANDREWS

Tutored for the following modules at St Andrews:

- **MT1001 – Introductory Mathematics**
- **MT1002 – Mathematics**
- **MT2502 – Analysis**
- **MT2505 – Abstract Algebra**

Student feedback regarding tutoring was 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 was rated on a scale of 1-5, with 1 being the best.

	Organisation	Significance	Explanation	Availability	No. of groups
MT2502 (Autumn 2019)	1.5	1.61	1.39	1.33	2
MT2505 (Spring 2020)	-	-	-	-	2
MT2502 (Autumn 2020)	1.75	1.69	1.81	1.75	3
MT1002 (Spring 2021)	2.07	1.87	1.87	1.8	2
MT2502 (Autumn 2021)	1	1	1	1	2
MT1002 (Spring 2022)	1.5	1.5	1.5	1.5	2
MT1001 (Autumn 2022)	1.83	1.83	1.83	1.83	3

CONFERENCES/WORKSHOPS ATTENDED

- Fractals and Related Fields IV, Porquerolles, France, 3/9/22-9/9/22
- 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 (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

MEMBERSHIP OF PROFESSIONAL BODIES

Edinburgh Mathematical Society