Louis Yudowitz - Curriculum Vitae

Personal Information

Email: l.yudowitz@qmul.ac.uk
Nationality: United Kingdom/United States of America
Country of Normal Residence: United Kingdom
Languages: English

Current Research Interests

Nonlinear partial differential equations, geometric flows (primarily Ricci flow), Einstein manifolds, minimal surfaces.

Education

2019-Present **PhD in Mathematics** at Queen Mary University of London. Supervisor: Dr. Reto Buzano. Expected completion date: March 2023.

2018-2019 **Master of Advanced Study in Mathematics (MASt)** at the University of Warwick.

2015-2018 **BSc Mathematics and Computer Science** (First Class Honours) at King's College London.

Academic Employment

2019-Present **Teaching Assistant**, Queen Mary University of London.

- See Teaching Experience section for more details.

2018-2019 **Research Assistant at the University of San Francisco (Professor Riggs, School of Management)**

- Ran statistical analysis concerning various transportation scenarios.
- Now a full time collaborator but no longer employed by USF.

2017 **Research Assistant at the University of San Francisco (Professors Devlin and Uminsky, Department of Mathematics)**

- Investigated the use of spectral analysis methods and their benefits over ridge regression and lasso regression techniques.

Awards

May 2021 QMUL Postgraduate Research Day Best Talk (2nd): "Refined Compactness Theorems for Gradient Shrinking Ricci Solitons".

June 2021 QMUL Postgraduate Research Day Best Poster (1st): "Bubble Tree Convergence of Ricci Solitons".

2019-2023 Queen Mary University of London Faculty of Science and Engineering Research Studentship.

Publications and Preprints

Buzano, Reto; Yudowitz, Louis. *Bubble Tree Convergence and Local Diffeomorphism Finiteness for Gradient Ricci Shrinkers.* Preprint, 2022, ArXiv: 2206.06791. Submitted.

Buzano, Reto; Yudowitz, Louis. *Gaussian Upper Bounds for the Heat Kernel on Evolving Manifolds.* Preprint, 2020, ArXiv: 2007.07112. Submitted.

Works in Preparation

A Symbol Computation of Heat Invariants on a Riemannian Manifold (with S. Scott and E. Grieger).

Generic Uniqueness for Ricci Expanders Coming out of Ricci-Flat Cones.

Past Theses

Determinants of Elliptic Differential Operators. Final year undergraduate research project at King's College London. Supervisor: Professor Simon Scott.

Determinantal Point Processes. Master's research project at the University of Warwick. Supervisor: Dr. Roger Tribe.

Invited Talks

Oct. 2022 KIT Geometric Analysis Seminar: "Bubble Tree Convergence of Gradient Ricci Shrinking Solitons" (upcoming, October 5, 2022).

Jan. 2022 KCL/UCL Junior Geometry Seminar: "Bubble Tree Convergence of Gradient Ricci Shrinking Solitons"

Nov. 2021 Queen Mary Internal Postgraduate Seminar (QuIPS): "Ricci Flow and the Poincaré Conjecture"

Contributed Talks

Sept. 2022 9th Heidelberg Laureate Forum: "Bubble Tree Convergence and Diffeomorphism Finiteness of Gradient Ricci Shrinking Solitons"

Programming Skills

Languages known: Java, Mathematica, Python, R.

Teaching Experience

Tutorials for *Probability and Statistics I*, QMUL, Fall Semester 2022/2023.

Tutorials for *Calculus II*, QMUL, Spring Semester 2021/2022.

Tutorials for *Actuarial Mathematics I*, QMUL, Fall Semester 2021/2022 and 2022/2023.

Tutorials for *Vectors and Matrices*, QMUL, Spring Semester 2019/2020.

Outreach

2022-Present **Math Circle Tutor (wesolveproblems.org.uk)**

- Participated in math circles and "math battles" run by WeSolveProblems as a tutor for students aged 11-18.
- Focused on developing problem solving skills and enjoyment of math by working through various sorts of problems (e.g. area, modular arithmetic, combinatorics).

2017-2018 **King's Factor Tutor at King's College London**

- Taught A-level students (Years 12 and 13) and introduced them to higher level mathematical problems not normally seen during A-levels.
- Guided students through problems taken from past MAT and STEP papers.

2015-Present **Private Tutor for UK (GCSE and A-level) and US (AP level) Students**

- Taught both groups and individuals in preparation for GCSE/A-level/AP exams.
- Subjects taught: Chemistry, Mathematics, Physics, Statistics.

Other

2022-Present Member of the London Mathematical Society.