# LUCAS BUZAGLO

lucas.buzaglo@ed.ac.uk
https://www.maths.ed.ac.uk/~lbuzaglo/

School of Mathematics
University of Edinburgh
James Clerk Maxwell Building
Peter Guthrie Tait Road
Edinburgh EH9 3FD
United Kingdom

## RESEARCH INTERESTS

Noncommutative algebra, infinite-dimensional Lie algebras.

## EDUCATION

**PhD**, University of Edinburgh, 2020-2024 (expected). Supervised by Prof. Susan J. Sierra.
Thesis title: Infinite-dimensional Lie algebras and their universal enveloping algebras.

**MMath Mathematics**, University of Oxford, 2016-2020: $1^{st}$ Class.

## PUBLICATIONS AND PREPRINTS

**Maximal dimensional subalgebras of general Cartan type Lie algebras**, arXiv:2311.06001.
With Jason Bell. Submitted to the *Bulletin of the London Mathematical Society*.

**Derivations, extensions, and rigidity of subalgebras of the Witt algebra**, arXiv:2310.17466.
Submitted to the *Journal of Algebra*.

**Enveloping algebras of Krichever–Novikov algebras are not noetherian**, *Algebras and Representation Theory* **26** (2023), no. 5, 2085–2111.

## RESEARCH TALKS

**A classification of subalgebras of the one-sided Witt algebra**, Algebra, Geometry and Topology Seminar, University of Kent, December 2023.

**A classification of subalgebras of the one-sided Witt algebra**, IX Non-Associative Day in Covilhã, University of Beira Interior, November 2023.

**A classification of subalgebras of the one-sided Witt algebra**, Hodge Club, University of Edinburgh, October 2023.

**A classification of subalgebras of the one-sided Witt algebra**, Algebra Seminar, University of Manchester, October 2023.

**Submodule-subalgebras of the Witt algebra**, ARTIN 61 & GEARS Summer Meeting, University of Glasgow, September 2023.

**Universal enveloping algebras of Lie algebras of derivations**, VI International Workshop on Non-Associative Algebras in Madrid, ETSAM, June 2023.

**The first cohomology of submodule-subalgebras of the Witt algebra**, Junior Algebra and Representation Theory Seminar, University of Oxford, May 2023.

**Enveloping algebras of Krichever–Novikov algebras**, Algebra Seminar, University of Edinburgh, March 2023.

**A survey on enveloping algebras of infinite-dimensional Lie algebras**, Junior Algebra and Number Theory Seminar, University of Cambridge, November 2022.

**A survey on enveloping algebras of infinite-dimensional Lie algebras**, Hodge Club, University of Edinburgh, October 2022.

**Universal enveloping algebras of Krichever–Novikov algebras**, Noncommutative Geometry and Noncommutative Invariant Theory, Banff International Research Station, September 2022.

**Universal enveloping algebras of infinite-dimensional Lie algebras**, Hodge Club, University of Edinburgh, July 2022.

**Universal enveloping algebras of Krichever–Novikov algebras**, Recent Advances and New Directions in the Interplay of Noncommutative Algebra and Geometry, University of Washington, June 2022.

**Universal enveloping algebras of Krichever–Novikov algebras**, GEARS seminar, Heriot-Watt University, May 2022.

## EXPOSITORY TALKS

**Loop algebras and their central extensions**, Glasgow algebra pre-seminar, University of Glasgow, March 2022.

**Krichever–Novikov algebras and deformations of the Witt algebra**, Reading group on Krichever–Novikov algebras, University of Edinburgh, December 2021.

**Deformation theory of Lie algebras**, Hodge Club, University of Edinburgh, October 2021.

**The almost-grading in Krichever–Novikov algebras**, Reading group on Krichever–Novikov algebras, University of Edinburgh, October 2021.

**Moduli spaces in noncommutative ring theory**, Hodge Club, University of Edinburgh, February 2021.

**The Witt algebra, Lie algebras and enveloping algebras**, GlaMS examples seminar, Online, October 2020.

## AWARDS AND GRANTS

**Program Associate, Noncommutative Algebraic Geometry**, MSRI, February–March 2024.

**Laura Wisewell Travel Scholarship**, Awarded £1000 for a research visit with Prof. Jason Bell, University of Waterloo, July 2023.

## CONFERENCES, WORKSHOPS, AND SCHOOLS ATTENDED

**IX Non-Associative Day in Covilhã**, University of Beira Interior, November 2023.

**ARTIN 61 & GEARS Summer Meeting**, University of Glasgow, September 2023.

**LMS Northern Regional Meeting & Workshop**, University of York, September 2023.

**Geometric Representation Theory and W-algebras**, International Centre for Mathematical Sciences, Edinburgh, August 2023.

**LMS Research School on Algebraic Groups and Their Representations**, University of Birmingham, July 2023.

**VI International Workshop on Non-Associative Algebras in Madrid**, ETSAM, Madrid, June 2023.

**Noncommutative Geometry and Noncommutative Invariant Theory**, Banff International Research Station, September 2022.

**Recent Advances and New Directions in the Interplay of Noncommutative Algebra and Geometry**, University of Washington, June 2022. Awarded $1500 to attend the conference.

**E-RNG Glasgow Meeting**, University of Glasgow, May 2022.

**Future Directions in Algebraic Groups and Lie Algebras in the UK**, University of Birmingham, April 2022.

**ARTIN Manchester 2022**, University of Manchester, March 2022.

**BMC/BAMC Glasgow 2021**, University of Glasgow, April 2021.

## CERTIFICATIONS

**Associate Fellow of the Higher Education Academy**, June 2022.

## TEACHING EXPERIENCE

**Introduction to Linear Algebra**, University of Edinburgh, Autumn 2023.

**Proofs and Problem Solving**, University of Edinburgh, Spring 2021, Spring 2022, Spring 2023.

**Introduction to Number Theory**, University of Edinburgh, Spring 2022, Spring 2023.

**Engineering Mathematics 1a**, University of Edinburgh, Autumn 2021, Autumn 2022.

**Commutative Algebra**, University of Edinburgh, Autumn 2022, Autumn 2023.

**Combinatorics and Graph Theory**, University of Edinburgh, Autumn 2022, Autumn 2023.

**Honours Analysis (skills)**, University of Edinburgh, Autumn 2021.

## ORGANISATIONAL EXPERIENCE

Coordinator, Hodge Institute postgraduate seminar series, 2023-2024.

Organiser, Hodge Club (seminar for Hodge Institute graduate students and postdocs), 2021-2022.

## CITIZENSHIP STATUS

Swiss, Italian, and Argentine citizen.

## LANGUAGES

Native in English and Spanish; fluent in French; proficient in Italian.

## MEMBERSHIP

Edinburgh Mathematical Society.