Katerina Hristova

CONTACT INFORMATION

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RESEARCH INTERESTS

Representation Theory, Geometric Representation Theory, Geometric Group Theory: In particular, I am interested in investigating the category of smooth representations of locally compact totally disconnected topologial groups, complete and twisted Kac-Moody groups and their associated buildings.

EDUCATION

University of Warwick, UK

Ph.D., Pure Mathematics October 2015–Present
- Advisers: Dr Dmitriy Rumynin and Dr Inna Capdeboscq
- Area of Study: Representation Theory

University of Warwick, UK

MMath. Mathematics, First Class with Honours, October 2010–2015.

PUBLICATIONS AND PREPRINTS

- Kac-Moody Groups and Cosheaves on Davis Building, joint with D. Rumynin, to appear in Journal of Algebra 515, pp. 202 – 235.

- Frobenius Reciprocity for Topological Groups, to appear in Communications in Algebra.

- Cocompact Lattices in Locally Pro-p-complete Rank 2 Kac-Moody Groups, with I. Capdeboscq and D. Rumynin, submitted to Journal of Pure and Applied Algebra.

SEMINAR AND CONFERENCE TALKS

- Representations of complete Kac-Moody groups, poster, *Summer School on Geometric Representation Theory*, IST Austria, 9–13 July 2018.
- Representations of complete Kac-Moody groups, *Algebra and Geometry Seminar*, University of Bristol, April 2018.
- Frobenius reciprocity for topological groups, *Algebra Seminar*, University of Warwick, December 2017.
- Smooth representations, projective resolutions and cosheaves, *Junior Algebra Seminar*, University of Cambridge, November 2017.
- Projective resolutions for smooth G-modules, *Noncommutative and Non-associative Algebraic Structures in Physics and Geometry*, Belfast, September 2017.
- On representations of locally profinite groups, *Postgraduate Seminar*, University of Warwick, 2017.
- Applications of Bruhat-Tits buildings to representation theory, *HIMR Kac-Moody groups and L-functions*, Nottingham, October 2016.
- Introduction to Bruhat-Tits Buildings, *HIMR Kac-Moody groups and L-functions*, Nottingham, October 2016.
- Groups, graphs and magic, *Ada Lovelace Day*, University of Warwick, October 2016.

UPCOMING TALKS

- Frobenius Reciprocity for Topological Groups, *London Algebra Colloquium*, Birkbeck, University of London, 18 October.
- Representations of Complete Kac-Moody Groups, *Representations in Lie Theory and Interactions*, CIRM, Luminy, France, 5–9 November 2018.

UPCOMING
CONFERENCES AND
SCHOOLS

- Representations in Lie Theory and Interactions, CIRM, Luminy, France, 5–9 November 2018.
- Kac-Moody Geometry, Besse-et-Saint-Anastaise, France, 20 – 24 May 2019.

CONFERENCES AND
SCHOOLS
ATTENDED

- Geometric Representation Theory Conference, Besse-et-Saint-Anastaise, France, 3–7 September 2018.
- Summer School on Geometric Representation Theory, IST Austria, 9–13 July 2018.
- ALSPAG, Noncommutative and Non-associative Algebraic Structures in Physics and Geometry, Belfast, United Kingdom, 30 August – 2 September 2017.
- Summer school: Current topics in the Theory of Algebraic Groups, Dijon, France, 3 – 7 July 2017.
- LMS-CMI Research School: New Trends in Representation Theory - The Impact of Cluster Theory in Representation Theory, Leicester, United Kingdom, 19 – 23 June 2017.
- HIMR Kac-Moody groups and L-functions, Nottingham, United Kingdom, 24 October – 3 November 2016.
- Representation Theory of Algebraic Groups: A conference in Honour of Stephen Donkin, York, United Kingdom, 13 –15 July 2016.
- Postgraduate Group Theory Conference, Imperial College, London, United Kingdom, 28 June –1 July 2016.
- Complete Reducibility, Geometric Invariant Theory and Buildings, Bochum, Germany, 15– 19 February 2016.

TEACHING
EXPERIENCE

Teaching Assistant for *Algebra I: Advanced Linear Algebra*. **October 2015 – Present**

- 2nd year undergraduate course on advanced linear algebra and the theory of finite abelian groups. Tutor for a weekly seminar for approx. 30 students, responsible for marking their fortnightly assessed work.

Teaching Assistant for *Algebra II: Groups and Rings*. **October 2016 – Present**

- 2nd year undergraduate course. Tutor for a weekly seminar for approx. 40 students, responsible for marking their fortnightly assessed work.

Teaching Assistant for *Representation Theory*. **January 2018– June 2018**

- Masters level course on representation theory of finite groups. Tutor for a weekly seminar for approx. 10 students.

Teaching Assistant for *Lie Groups*. **October 2016 – January 2017**

- Masters level course on Lie theory. Tutor for a weekly seminar for approx. 10 students.

Teaching Assistant for *Tensors, Spinors and Rotations*. **January 2016– April 2016**

- 3rd year undergraduate course. Tutor for a weekly seminar for approx. 10 students, responsible for marking their fortnightly assessed work.

Teaching Assistant for *Ring Theory*. **October 2015– January 2016**

- Masters level course on Non-commutative ring theory. Tutor for a weekly seminar for approx. 10 students.

Supervisor of 2 groups of second year undergraduate students. **October 2015– May 2016**

- Tutor for two groups of 5 students each, responsible for marking their assessed work in Algebra, Analysis and Differentiation.

Supervisor of 3 groups of first year undergraduate students. **October 2014– May 2015**

- Tutor for 3 groups of 5 students each, responsible for marking their assessed work in Algebra, Analysis and Geometry.

OTHER
COMMITMENTS

- Organiser of Reading Seminar on Algebraic Groups, January 2018– April 2018.
- Language editor of Demonstratio Mathematica, De Gruyter Open, October 2017–present.
- Exam marking - Foundations, Advanced Linear Algebra, Introduction to Abstract Algebra.

LANGUAGES

- Bulgarian - native.
- English - fluent.
- French - Intermediate (B1 Level).
- German - Basic (A2 Level).