Jolanta Marzec

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EMPLOYMENT

Kazimierz Wielki University in Bydgoszcz, October 2020 - present
Adiunkt.

Technical University of Darmstadt, July 2018 - June 2020
Research Assistant.

University of Silesia, January 2018 - September 2018 (part-time)
Work in the project "Open Digital Research Environment Toolkit for the Advancement of Mathematics"; the project was supported by the EU Research and Innovation Program "Horizon 2020".

University of Silesia, October 2017 - September 2019
Research and Teaching Assistant in the Group of Algebra and Number Theory.
(On an unpaid leave from October 2018.)

Durham University, April 2016 - March 2017
Research Associate at Durham University, work with Thanasis Bouganis within the area of an EPSRC grant entitled "Arithmetic of automorphic forms and special L-values".

EDUCATION

Higher Vocational Education School, March 2020 - present
Postgraduate studies "Pedagogical training for teachers of subjects or classes conducted in primary and secondary schools"

University of Bristol, October 2012 - June 2016
PhD in Mathematics
Thesis: *On Bessel models for* GSp_4 *and Fourier coefficients of Siegel modular forms of degree* 2
Advisor: Abhishek Saha

VU University Amsterdam, September 2011 - June 2012
Master's Degree in Theoretical Mathematics
University of Silesia, September 2010 - July 2012
Master's Degree in Theoretical Mathematics, perfect grade
Thesis: *The theorem of Mordell-Weil*

University of Silesia, September 2007 - July 2010
Bachelor's degree in Theoretical Mathematics

GRANTS, PRIZES

- University of Bristol Scholarship funded by EPSRC, 2012-2016
- Ministry of Science and Higher Education Scholarship for best learning results, in three consecutive years, 2009-2012
- The VU Fellowship Programme Scholarship, 2011-2012
- Rector of the University of Silesia Scholarship for best learning results, 2011-2012
- 1st place at the competition for a best talk during the 14th International Workshop for Young Mathematicians "Algebra", 2011
- 8th place at the Nationwide "Codebreakers" Team Competition, 2009

PREPRINTS, PUBLICATIONS

1. *Construction of Poincaré-type series by generating kernels* (with Y. Kara, M. Kumari, K. Maurischat, A. Mocanu, L. Smajlović), 2020, 39 pages; to appear in the Proceedings of the Women in Numbers Europe 3 Conference.
   Available at https://arxiv.org/abs/2002.09061.

2. *Algebraicity of special L-values attached to Siegel-Jacobi modular forms* (with Thanasis Bouganis), manuscripta math., 166 (2021), pp. 359–402, DOI: 10.1007/s00229-020-01243-w (open access)

3. *Maass relations for Saito-Kurokawa lifts of higher levels*, Ramanujan J., 55 (2021), pp. 25-51, DOI: 10.1007/s11139-020-00250-5 (open access).

4. *On the analytic properties of the standard L-function attached to Siegel-Jacobi forms of higher index* (with Thanasis Bouganis), Documenta Mathematica 24 (2019), pp. 2613-2684, DOI: 10.25537/DM.2019V24.2613-2684 (open access).

5. *Non-vanishing of fundamental Fourier coefficients of paramodular forms*, Journal of Number Theory, 182 (2018), pp. 311-324, DOI 10.1016/j.jnt.2017.07.002.

6. *Over problems of implicitization and solving polynomial equations.* In: Algebra: 14th International Workshop for Young Mathematicians; Association of Mathematicians Students of the Jagiellonian University, 2012, ISBN 978-83-929547-3-6.

INVITED TALKS

1. *Construction of Poincaré-type series by generating kernels*:
   - Number Theory Seminar, Institute of Mathematics Polish Academy of Sciences (Poland), 4.10.2021;
   - Linfoot Online Number Theory seminar, Bristol University (UK), 13.05.2020.

2. *Some evidence towards Resnikoff-Saldaña conjecture*, Modular Forms on Higher Rank Groups, TU Darmstadt (Germany), 17-20.09.2019.

3. *On Fourier coefficients of Siegel modular forms of degree 2*, Jubilee Congress for the 100th Anniversary of the Polish Mathematical Society, Kraków (Poland), 3-7.09.2019.

4. *Maass relations for Saito-Kurokawa lifts of higher levels*:
   - Online Number Theory seminar, Institute of Mathematics Polish Academy of Sciences (Poland), 22.06.2020;
   - Arithmetic Study Group, Durham University (UK), 5.02.2019;
   - Number Theory seminar at University of Cologne (Germany), 22.01.2019;
   - Conference "Women in Automorphic Forms", TU Darmstadt (Germany), 5-7.09.2018.

5. *On algebraic properties of L-functions attached to Jacobi forms of higher index*, Workshop "Arithmetic of automorphic forms and special L-values", Durham (UK), 26-27.03.2018.

6. *On properties of standard L-functions of Jacobi forms*, The Twentieth Colloquiumfest, Szczecin (Poland), 19-22.05.2017.

7. *On standard L-functions attached to Jacobi forms of higher index*:
   - Modulfunktionen seminar, University of Heidelberg (Germany), 10.05.2017;
   - Algebra and Number Theory seminar at University of Silesia (Poland), 19.04.2017;
   - British Mathematical Colloquium, Durham (UK), 3-6.04.2017;
   - University of Bristol Number Theory seminar (UK), 22.02.2017;
   - University of Sheffield Number Theory seminar (UK), 6.12.2016;
   - University of Warwick Number Theory seminar (UK), 21.11.2016.

8. On motivation to study mathematics and a workshop *On prime numbers*, Stanisław Staszic 4th Secondary School in Sosnowiec (Poland), 19.09.2016.

9. *Non-vanishing of fundamental Fourier coefficients of Siegel modular forms*, Bianchi and Siegel Modular Forms Workshop, Sheffield (UK), 14-16.07.2014.

10. *On prime numbers*, during a mathematical competition in Cieszyn (Poland), 12.05.2010.

OTHER TALKS

1. *On Fourier coefficients of Siegel modular forms of degree 2*, seminar of the Mathematical Institute of UKW in Bydgoszcz (Poland), 16.11.2020.

2. *Galois representations associated to Siegel modular forms*, Darmstadt-Frankfurt seminar (Germany), 16.01.2020.

3. *Paramodularity*, Darmstadt-Frankfurt seminar (Germany), 7.11.2019.

4. *Automorphic representations*, Darmstadt-Frankfurt seminar (Germany), 6.12.2018.

5. *Relations between Fourier coefficients of Siegel modular forms*, Number Theory seminar, TU Darmstadt (Germany), 16.10.2018.

6. *Interactive open source e-book: Lectures on Linear Algebra*, International Conference of Mathematical Sciences, Istanbul (Turkey), 31.07-06.08.2018.

7. *On the standard L-function attached to Jacobi forms of higher index*, Ecole d'Eté Zetas 2018, Université Savoie Mont Blanc (France), 18-29.06.2018.

8. *Maass relations for Saito-Kurokawa lifts of higher levels*, 32nd Automorphic Forms Workshop, Medford (USA), 19-22.03.2018.

9. *Maass relations for Saito-Kurokawa lifts of higher levels*, Algebra and Number Theory seminar at University of Silesia (Poland), 6.12.2017.

10. *On L-functions attached to Jacobi forms of higher index*, 31st Automorphic Forms Workshop, Johnson City (USA), 6-9.03.2017.

11. *On Siegel modular forms and their Fourier coefficients*, Arithmetic study group, Durham University (UK), 3.05.2016.

12. *Hecke eigenvalues vs Fourier coefficients*, 5-minute talk at British Mathematical Colloquium 2016, University of Bristol (UK), 21-24.03.2016.

13. *How mathematicians fell in love with modular forms*, Pure Postgraduate Seminar, University of Bristol (UK), 11.12.2015.

14. *In search of fundamental Fourier coefficients* (poster), Computational Aspects of Modular Forms and Curves of Small Genus, ICERM (USA), 28.09 - 2.10.2015.

15. *Introduction to Siegel modular forms*, postgraduate and postdoc seminar, ICERM (USA), 21.09.2015.

16. *Siegel modular forms and their fundamental Fourier coefficients*, Journées Arithmétiques, University of Debrecen (Hungary), 6-10.07.2015.

17. *A dance on the edge of number theory*, It All Adds Up: Celebrating 150 Years Of Women Across the Mathematical Sciences, University of Oxford (UK), 16-17.04.2015.

18. *Those amazing L-functions*, for the Students' Mathematical Society of the University of Silesia (SMS), University of Silesia (Poland), 16.12.2014.

19. *Don't run away when you see an L-function*, MINGLE, University of Bristol (UK), 25.09.2014.

20. *Non annulation des coefficients de Fourier fondamentaux des formes modulaires de Siegel*, Colloque Jeunes Chercheurs en Théorie des Nombres, Bordeaux (France), 11-13.06.2104.

21. *Non-vanishing of fundamental Fourier coefficients of Siegel modular forms* (20 min.), 28th Automorphic Forms Workshop, Moab (USA), 12-16.05.2014.

22. *Curiosities behind numbers and wrong conjectures*, MINGLE, University of Bristol (UK), 26.09.2013.

23. *From DES to AES*, Pure Postgraduate Seminar, University of Bristol (UK), 17.05.2013.

24. *Representation Theory of Finite Groups*, for undergraduate students, University of Silesia (Poland), 5.04.2013.

25. *Introduction to SAGE*, for the SMS, University of Silesia (Poland), 13.01.2012.

26. *On problems of implicitization and solving polynomial equations*, The 14th International Workshop for Young Mathematicians "Algebra", Kraków (Poland), 10 - 16.07.2011.

27. *Jacobian properties and stability of solutions of ODEs*, 8th SMS' Summer Camp: Applications of differential equations, Zakopane (Poland), 1-7.07.2011.

28. *The Bernstein set*, XXX SMS' Session: Pathologies and paradoxes in mathematics, Szczyrk (Poland), 29.04 - 03.05.2011.

29. *Triangles and the principle of duality in Galilean geometry*, for the SMS, University of Silesia (Poland), 16.12.2010.

30. *The Rijndael algorithm*, XXIX SMS' Session: Mathematics and Computing Science, Szczyrk (Poland), 26 - 28.11.2010.

31. *PageRank algorithm*, Summer Maths Workshop, Toruń (Poland), 23 - 27.08.2010.

32. *Haar measure*, 7th SMS' Summer Camp: Measure Theory, Zakopane (Poland), 19 - 25.07.2010.

33. *The law of quadratic reciprocity*, XXVIII SMS' Session: Alternative proofs, 30.04 - 03.05.2010.

34. *Parametrazibility for equations on words*, VIth International Students' Conference on Analysis, Síkfőkút (Hungary), 31.01-03.02.2010.

35. *The Solovay-Strassen primality test*, for the SMS, University of Silesia (Poland), 17.12.2009.

36. *The ancient problems vs quadratices*, XXVII SMS' Session: Mathematics in pictures, Szczyrk (Poland), 6 - 8.11.2009.

37. *Introduction to the theory of ordered fields*, Summer Maths Workshop, Toruń (Poland), 31.08 - 04.09.2009.

38. *The theory of ordered fields*, Ist Summer School of Technical University in Cracow, Krynica (Poland), 4 - 8.07.2009.

39. *The classic inequalities and their integral equivalents*, XXVI SMS' Session: Equations and Inequalities, Szczyrk (Poland), 30.04 - 03.05.2009.

40. *The form of perfect numbers*, XXV SMS' Session: Numbers, Szczyrk (Poland), 28 - 30.11.2008.

41. *Cryptography*, XXIV SMS' Session: Applications of mathematics, Szczyrk (Poland), 30.05 - 01.06.2008.

TEACHING EXPERIENCE

Kazimierz Wielki University

2021/2022, term 1: tutor of the course "Introduction to topology" and lecturer (online with MS Teams) of the courses "Introduction to mathematics", "Elementary number theory", "Statistics with elements of mathematics in geography".

Additionally: lecture "Elliptic curve cryptography" prepared for high school students as a part of Bydgoszcz' Autumn Mathematical Impressions 2021.

2020/2021, term 2: lecturer of the courses "Mathematical analysis I", "Galois theory", "Algebra with number theory". Because of COVID19 everything takes place online with use of the platform MS Teams.

2020/2021, term 1: lecturer and tutor of the courses "Introduction to topology" and "Elementary number theory". Because of COVID19 everything takes place online with

use of the platform MS Teams.

Additionally: a recording of the lecture "Elliptic curve cryptography" (in Polish) prepared as a part of Bydgoszcz' Autumn Mathematical Impressions 2020.

Technical University of Darmstadt

2019/2020, term 2: tutor of the course *"Algebraic Number Theory"* for master students. Because of COVID19 the tutorials took place online with use of platforms Moodle and Zoom.

2019/2020, term 1: organizer of Darmstadt-Frankfurt seminar "The paramodularity conjecture". Plan of the seminar is available at the website of AG Algebra.

2018/2019, term 2: lecturer of the course *"L-functions and applications"* for master students. (Lectures and tutorials prepared together with Michalis Neururer.)
Content:
various types of L-functions (Riemann, Dedekind, Hecke, Artin), splitting behaviour of primes in algebraic extensions, Galois representations, Chebotarev density theorem, connections with modular forms.
Moreover, during tutorials students used a mathematical software system SageMath.

2018/2019, term 1: mini-course *"Automorphic representations", for Algebra group.*
Content (own design):
overview of automorphic representatios of GL(n) *and* GSp(n), *examples, connection with L-functions.*

University of Silesia

Tutor *of the following courses: Introduction to Algebra and Number Theory, Introduction to Computer Science, Elements of Abstract Algebra, Mathematics for Chemists. My work also involved preparation of tests and assignments, and marking.*

Preparation and leading of an interactive one hour workshop "Workshop on de(en)cryption" for the π-Day celebrations. The workshop was reapeted 6 times for students from primary schools and high schools.

Durham University

Preparation of an interactive 20 minute workshop "Encryption" in the Durham University Schools' Science Festival 2017, which would be repeated a few times. This also involved training a few PhD students to help running the workshop.

University of Bristol

Tutor

2014/2015: Analysis 1, Calculus
2013/2014: Analysis 1, Calculus
2012/2013: Analysis 1, Number Theory and Group Theory,
Further Topics in Analysis

Marking

· Exams from Analysis and Further Topics in Analysis (in 2013 and 2015).

· Homework assignments: as a tutor of the courses above, Number Theory (in 2013), Algebraic Number Theory (in 2013 and 2014; also involved preparation of solution sheets).

University of Silesia and schools in Poland

Workshops for broad audience *(own design and organisation)*

14.03.2011: Origami (celebrations of the π-Day)

24.09.2010: Encryption (the Silesian Scientists' Night)

11-12.03.2010, 12-13.03.2009: Encryption (celebrations of the π-Day)

Workshops for high school students preparing to mathematical competitions *(own design and organisation)*

24.04.2010: Polynomials - continuation

10.04.2010: Polynomials

27.03.2010: Mathematical games and logic puzzles - continuation

20.03.2010: Mathematical games and logic puzzles

23.01.2010: Inequalities

12.12.2009: Combinatorial geometry - coloring

21.11.2009: Mathematical induction - part 2

14.11.2009: Mathematical induction

24.10.2009: Diophantine equations

10.10.2009: Congruences

Lectures for students of secondary schools

19.09.2016: On prime numbers (4th Secondary School in Sosnowiec)

5.04.2013: Representation theory of finite groups

6.05.2011: Ceva and Menealos theorems

10.12.2010: Colorful exercises (1st Secondary School in Tychy, the Day of Science)

29.10.2010: A look at Łobaczewski's geometry

23.04.2010: The power of a point

12.03.2010: Prime numbers on the Euclidean plane (celebrations of the π-Day)

18.12.2009: Numeral systems

23.10.2009: Diophantine equations

8.05.2009: Why shouldn't you resign from taking the negative numbers' roots?

19.03.2009: Colorful exercises (1st Secondary School in Tychy, the Day of Science)

13.03.2009: War negotiations (celebrations of the π-Day)

9.01.2009: Euler's function

24.10.2008: Congruences

Lectures for students of junior high schools

17.12.2010: Metrics - different ways of measuring distance (5th Junior High School in Tychy)

12.05.2010: On prime numbers (during a mathematical competition in Cieszyn)

Lectures for students of the children university UNIKIDS in Bielsko Biała, Poland

19.03.2011: Optics of a mathematician

19.02.2011: Mysteries of the number π

Private lessons *for students of the age 8-19 in the years 2007-2011.*

EXTRA-CURRICULAR ACTIVITIES	

EXTRA-CURRICULAR ACTIVITIES

- referee for *Mathematika, Fundamenta Informaticae*,
- *since 2008: populariser of mathematics among pupils and students by talks and participation in popularising events: π-Days, Festival of Science, etc.*
- *co-organiser of Pint of Science 2016: Tech Me Out in Bristol (event manager),*
- *2013-1015: organiser of a reading group "Automorphic representations",*
- *2007-2013: member of the Students' Mathematical Society (SMS) of the University of Silesia,*
- *2007-2012: co-organiser of π-Day's celebration at University of Silesia (event manager),*
- *2009-2011: deputy director of the Students' Mathematical Society of the University of Silesia,*
- *2009-2011: member of the Committee of the Institute of Mathematics, University of Silesia,*
- *2009-2010: organiser of a course preparing to mathematical competitions.*

ADDITIONAL INFORMATION

Computing: *SageMath*
Languages: *native Polish, fluent English, Spanish (level B1), French (level B1), German (level B1)*
Certificates:

- *Certificate of Participation in the [3-day] course "Autopresentation with elements of voice emition", 2021.*
- *Certificate of Participation in the [2-day] course "Supervising Bachelor and Master Theses", 2019*
- *Certificate of Participation in the [1-day] course "Teaching an international classroom", 2019*
- *Certificate of Participation in the [1-day] course "Too many topics – too little time: Selecting topics and material in a goal oriented way", 2020*
- *Cambridge ESOL Certificate in Advanced English (level C1), 2010*
- *Staatsexamen, Nederlands als tweede taal, Programma 1 (certificate in Dutch, level B1), 2012*
- *Sport rock climbing certificate, signed by Mateusz Kilarski, 2009*

Hobbies: *all kinds of dance, rock climbing, hiking, theatre, origami, logical games and puzzles*

REFERENCES

Abhishek Saha
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Queen Mary University of London
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Department of Mathematics
University of North Texas
`ralf.schmidt@unt.edu`

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