CURRICULUM VITAE

Name: Olga Maleva
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1 Employment:

• Aug 2017–now: Reader in Pure Mathematics, University of Birmingham, UK.

• Oct 2014–July 2017: Senior Lecturer in Pure Mathematics, University of Birmingham, UK.

• Aug 2008–Sept 2014: Lecturer in Pure Mathematics, University of Birmingham, UK.

• Sept 2006–July 2008: EPSRC Postdoctoral Position, University of Warwick, UK.

• Oct 2005–Sept 2006: College Teaching Officer and Director of Studies in Pure Mathematics, Emmanuel College, University of Cambridge, UK.

• Dec 2003–Nov 2005: EU Marie Curie Postdoctoral Research Fellow, University College London, UK.

2 Education:

• 1998–2003: The Weizmann Institute of Science, Israel; PhD in Mathematics.
Supervisor: Professor Gideon Schechtman.

• 1996–1998: St Petersburg State University, Russia; MSc (equiv) in Mathematics with distinction, Grade point average: 5.0 out of 5.0.

• 1993–1995: St Petersburg State University, Russia; BSc studies under a joint programme of the St Petersburg University and the Steklov Institute of Mathematics of Russian Academy of Sciences, Grade point average: 5.0 out of 5.0.

3 Research:

3.1 Research to date

I work in Mathematical Analysis. My research is in the area of Functional Analysis. Motivated by fundamental questions about geometry of Banach spaces, I have to date achieved results in its emerging frontiers with a variety of disciplines, including geometric measure theory via rectifiable subsets and density of measures, metric differentiability spaces, and analysis of smoothness of functions and local structure of negligible sets.

3.2 Planned Research

I have recently obtained an EPSRC standard grant "Differentiability and Small sets", and my research within the next three years will be, to a significant extent, motivated by the objectives and the intense programme of the grant. Thus, in the medium term, I will work to advance the state of the art in Geometric Functional Analysis, in the following five principal directions.

1. Find the exact lower bound for the dimension function of fractals known as universal differentiability sets for real-valued Lipschitz functions on finite-dimensional spaces.

2. Obtain precise results concerning the typical differentiability type of Lipschitz functions on a null set in a Euclidean space. The answer will be in terms of Baire category on the space of functions. Look for ways to investigate typical behaviour of Lipschitz functions on subsets of Banach spaces.

3. Analyse the dimension properties of universal differentiability sets of vector-valued Lipschitz functions on a Euclidean space (or tuples of real valued Lipschitz functions).

4. Lay the foundations of the theory of curve porous sets, which is expected to be the right setup for investigating differentiability on abstract metric spaces.

5. Understand and develop the chain rule for differentiability of pointwise Lipschitz functions between Banach spaces.

3.3 Research grants within the last 5 years

I have been the Principal Investigator in the following research grants held at the University of Birmingham:

• April 2016: EPSRC Standard Grant "Differentiability and Small sets" (EP/N027531/1) Grant value £254,111.
This is a 3 year research grant which also has funding for a postdoctoral assistant for 2 years and organisation of a conference in the University of Birmingham. The grant will fund my research on description of exceptional sets and differentiability of Lipschitz functions.

• Oct 2014: LMS Scheme 4 grant (research in pairs), London Mathematical Society. Grant value £705.
The grant was used to fund a research visit of Dr Dymond from the University of Innsbruck, Austria to the University of Birmingham. A research paper which arose from this visit has now been published in the Michigan Mathematical Journal.

• June 2012: EPSRC *"Developing Leaders"* Grant (EP/J501414/1). Grant value £17,540.
The grant was primarily used to organise an international conference, Banach Spaces Workshop, University of Birmingham, UK.

• August 2010–August 2012: EPSRC First Grant, *"Geometry of Lipschitz Mappings"* (EP/H043004/1). Grant value £124,641.

3.4 Invited conference talks last 5 years

- Invited seminars and colloquia over the last 5 years: University of Lille (France), The Hebrew University of Jerusalem, The Technion, The Weizmann Institute of Science (Israel), Queen's University Belfast, University of Birmingham, University of Bristol, University of Cardiff, University of Edinburgh, University of Glasgow, University of Kent, King's College London, University of Leeds, University College London, University of Oxford, University of Warwick (UK).
- Workshop of "Geometric Functional Analysis and Applications" programme, at MSRI, University of California, Berkeley (USA), August–September 2017
- Workshop "Geometric Measure Theory", University of Warwick, July 10-14, 2017
- Workshop "Geometric Topology and Geometry of Banach spaces", Ben-Gurion University of the Negev (Israel), May 14-19, 2017
- Short course at the LMS Undergraduate Summer school, University of Kent, 18–20 July, 2016
- Conference "Genericity and Small sets in Analysis", Esneux, Belgium in 26–28 May, 2015, funded by CNRS
- Colloquium and the Weekend seminar on Analysis, Innsbruck, Austria, 24–26 October, 2014
- European Research Council (ERC) Workshop "Geometric Measure Theory, Analysis in Metric Spaces and Real Analysis", University of Pisa, Italy, 7–11 October 2013
- Conference "Banach spaces: Geometry and Analysis", Hebrew University of Jerusalem, Israel, 26–31 May 2013, funded by he Israel Institute for Advanced Studies (IIAS)

- Workshop "Non-Smooth Geometry", Institute for Pure and Applied Mathematics (IPAM), UCLA, USA, 29 April–3 May 2013
- Programme "Geometry of Banach Spaces", CIRM Luminy, France, 27–31 August 2012
- Workshop "Embedding Problems in Banach Spaces and Group Theory", MSRI, University of California, Berkeley, USA, 17–21 Oct 2011

3.5 Service to the Mathematical community

I was appointed an Editorial Advisor for the following leading mathematical journals: Bulletin, Journal, Proceedings and Transactions of the London Mathematical Society from 01 Jan 2015–31 Dec 2019.
I am also a reviewer for Zentrablatt MATH since 2013.

4 Supervision

• Sept 2013–Sept 2017: **PhD supervision** (primary) of Cristina Villanueva-Segovia, University of Birmingham, UK. Funded by CONACYT (National Council of Science and Technology of Mexico).

• Sept 2011–July 2014: EPSRC-funded **PhD supervision** (primary) of Michael Dymond, University of Birmingham, UK.

Dr Dymond was subsequently appointed as a research fellow on a 4-year postdoctoral position in the University of Innsbruck, Austria.

• September 2015 – May 2016, September 2014 – May 2015, September 2013 – May 2014: Supervision of the 4th year project "Baire's category theorem and Banach-Mazur game", University of Birmingham, UK.

• September 2013 – May 2014, September 2014 – May 2015: Supervision of the 4th year project "The Mathematics of Voting", University of Birmingham, UK.

• July – August 2013: Supervision of the summer project "Fractals and Hausdorff dimension", University of Birmingham, UK.

• September 2012 – May 2013: Supervision of the 4th year project "The Mathematics of Voting", University of Birmingham, UK.

• July – August 2012: Supervision of the summer project "Kakeya problem and dimensions in Euclidean spaces", University of Birmingham, UK.

• July–Aug 1999: Instructor of the Summer Science Institute at the Weizmann Institute of Science, Israel.

Undergraduate courses, University of Birmingham	Foundation and Abstraction (Years 1 and 2), Further Mathematics† (Year 0), Introduction to Mathematics (Year 1), Linear Analysis† (Years 3 and 4), Measure theory and Integration† (Years 3 and 4), Topics in Analysis† (Year 4).
Undergraduate courses, elsewhere	Analysis I (Year 1), University of Warwick; Real Analysis (Year 3), UCL.
Graduate courses, elsewhere	Mathematical Models in Biology, The Weizmann Institute of Science.
Other undergraduate teaching:	Supervising at the University of Warwick, at Cambridge University, at University College London, tutoring at the University of Birmingham.
Course design:	The courses marked † were developed by Olga Maleva.

5 Citizenship

Organisation of conferences and seminars:

• June 2015: Organiser (jointly with David Preiss, University of Warwick) of the international conference *Relations Between Banach Space Theory and Geometric Measure Theory workshop*, University of Warwick, UK. *There were more than 90 participants from 21 countries. The conference attracted many internationally leading experts in the area such as J.M.F. Castillo, G. Godefroy, W.B. Johnson, A. Naor, M. Ostrovskii, G. Schechtman, T. Schlumprecht.*

• 2012–13: Organiser of a joint Birmingham-Warwick Analysis seminar, University of Birmingham and University of Warwick, UK.

• June 2012: Organiser (jointly with David Preiss, University of Warwick) of the international conference *Banach Spaces Workshop*, University of Birmingham, UK. *There were more than 60 participants from 16 countries. The conference attracted many internationally leading experts in the area such as P. Dodos, V. Fonf, P. Hajek, R. Haydon, W.B. Johnson, G. Lancien, P. Müller, G. Schechtman, T. Schlumprecht.*

Research networks:

• September 2015–now: I am the University of Birmingham representative in the North British Analysis Seminar (NBFAS). *The NBFAS unites Analysis groups in 14 UK universities who meet three times per year, holding one- or two-day meetings in one of its member institutions.*

• September 2012–September 2015: I was an associate member of the research network "Quantum groups, operators, and non-commutative probability" funded by the London Mathematical Society, with main nodes in the Universities of Lancaster, Leeds and Warsaw. *Although my research interests are not in the heart of the above research network, the organisers invited me to be an associate member. As such I was invited to speak at meetings of the network. The invitation shows the recognition of the intra-disciplinary value of my frontier research and expertise.*

5.1 Contribution to University management

• Sep 2015– Sep 2017: Reasonable Adjustments Officer

• July 2009–Sep 2017: Welfare Tutor, School of Mathematics, University of Birmingham

• Jan 2010–June 2010: Lead Welfare Tutor, School of Mathematics, University of Birmingham

• Oct 2008–July 2009: Erasmus coordinator, School of Mathematics, University of Birmingham