

# Curriculum Vitae of György Pál Gehér

## Contact information

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## Employment history

- 9/2018 – 8/2021 **Leverhulme Trust Early Career Fellow**, Department of Mathematics and Statistics, University of Reading, Reading, UK
- 10/2016 – 7/2018 **Post-doctoral Research Assistant**, Department of Mathematics and Statistics, University of Reading, Reading, UK
- 10/2015 – 9/2016 **Post-doctoral Research Assistant**, MTA-SZTE Analysis and Stochastics Research Group, Bolyai Institute, University of Szeged, Szeged, Hungary
- 7/2013 – 9/2015 **Research Assistant** (part-time employment), MTA-DE 'Lendület' Functional Analysis Research Group, University of Debrecen, Debrecen, Hungary
- 7/2015 – 9/2015 **Assistant Professor**, Bolyai Institute, University of Szeged, Szeged, Hungary (after three months I was offered a better position which I accepted)
- 9/2013 – 6/2015 **Research Assistant**, Bolyai Institute, University of Szeged, Szeged, Hungary

## Education

- 2015 **PhD degree** in Mathematics, University of Szeged, Szeged, Hungary  
Supervisor: László Kérchy  
Thesis: Asymptotic behaviour of Hilbert space operators with applications
- 2010 **Master's degree** in Mathematics, University of Szeged, Szeged, Hungary  
Supervisor: László Kérchy  
Thesis: On the commutant of asymptotically non-vanishing contractions

## Awards, distinctions, scholarships

- 2018 'Lump Sum Award' for teaching excellence (awarded by the University of Reading)
- 2017 '2016 JMAA Ames Award' for the best paper in pure mathematics (awarded by the Editorial Board of the Journal of Mathematical Analysis and Applications)  
<https://www.journals.elsevier.com/journal-of-mathematical-analysis-and-applications/news/winner-of-2016-jmaa-ames-award-announced>
- 2015 'Grünwald Géza Award' (awarded by the János Bolyai Mathematical Society)
- 2015 'Problems and Recent Methods in Operator Theory Workshop Poster Award' (awarded by the University of Memphis)
- 2015 'Pro Laudanda Promotio Award' for outstanding PhD thesis (awarded by the University of Szeged)
- 2015 'National Outstanding Researcher Award' for carrying out an outstanding research programme under the framework of Jedlik Ányos Predoctoral Scholarship (awarded by the National Excellence Program)
- 2014 Jedlik Ányos Predoctoral Scholarship (awarded by the National Excellence Program)

- 2013 Apáczai Csere János PhD Scholarship (awarded by the National Excellence Program)
- 2011 1<sup>st</sup> Prize, National Conference of the Scientific Students' Associations
- 2010 'Outstanding Student of the Faculty Award' (awarded by the University of Szeged)

### List of publications

- [1] G.P. Gehér and P. Šemrl, Isometries of Grassmann spaces II, *Advances in Mathematics* **332** (2018) 287–310
- [2] G.P. Gehér, Symmetries of projective spaces and spheres, *International Mathematics Research Notices*, accepted for publication
- [3] G.P. Gehér and T. Titkos, A characterisation of isometries with respect to the Lévy-Prokhorov metric, *Annali della Scuola Normale Superiore di Pisa - Classe di Scienze*, accepted for publication
- [4] G.P. Gehér, Surjective Kuiper isometries, *Houston Journal of Mathematics* **44** (2018), 263–281
- [5] G.P. Gehér, Wigner's theorem on Grassmann spaces, *Journal of Functional Analysis* **273** (2017), 2994–3001
- [6] H.Y. Chen, G.P. Gehér, C.N. Liu, L. Molnár, D. Viosztek and N.C. Wong, Generalised isometries of the positive definite cone with respect to the quantum  $\chi_\alpha^2$ -divergences, *Letters in Mathematical Physics* **107** (2017), 2267–2290
- [7] G.P. Gehér, On  $n$ -norm preservers and the Aleksandrov conservative  $n$ -distance problem, *Aequationes Mathematicae* **91** (2017), 933–943
- [8] G.P. Gehér, Bilateral weighted shift operators similar to normal operators, *Operators and Matrices* **10** (2016) 419–423
- [9] G.P. Gehér, Asymptotic behaviour and cyclic properties of weighted shifts on directed trees, *Journal of Mathematical Analysis and Applications* **440** (2016), 14–32
- [10] G.P. Gehér and P. Šemrl, Isometries of Grassmann spaces, *Journal of Functional Analysis* **270** (2016), 1585–1601
- [11] G.P. Gehér, Is it possible to determine a point lying in a simplex if we know the distances from the vertices?, *Journal of Mathematical Analysis and Applications* **439** (2016) 651–663 (JMAA Ames Award)
- [12] G.P. Gehér, Asymptotic limits of operators similar to normal operators, *Proceedings of the American Mathematical Society* **143** (2015) 4823–4834
- [13] G.P. Gehér, A contribution to the Aleksandrov conservative distance problem in two dimensions, *Linear Algebra and its Applications* **481** (2015), 280–287
- [14] G.P. Gehér, Characterization of Cesáro- and  $L$ -asymptotic limits of matrices, *Linear and Multilinear Algebra* **63** (2015), 788–805
- [15] G.P. Gehér, Maps on real Hilbert spaces preserving the area of parallelograms and a preserver problem on self-adjoint operators, *Journal of Mathematical Analysis and Applications* **422** (2015), 1402–1413
- [16] G.P. Gehér and G. Nagy, Maps on classes of Hilbert space operators preserving measure of commutativity, *Linear Algebra and its Applications* **463** (2014), 205–227
- [17] G.P. Gehér, An elementary proof for the non-bijective version of Wigner's theorem, *Physics Letters A* **378** (2014), 2054–2057
- [18] G.P. Gehér, Positive operators arising asymptotically from contractions, *Acta Scientiarum Mathematicarum (Szeged)* **79** (2013), 273–287
- [19] G.P. Gehér and L. Kérchy, On the commutant of asymptotically non-vanishing contractions, *Periodica Mathematica Hungarica* **63** (2011), 191–203

### Organising activities

- 24 – 28/7/2017 **Organiser** of the mini-symposium 'Toeplitz Matrices and Riemann-Hilbert Problems' at the '2017 Meeting of the International Linear Algebra Society' (ILAS 2017), (Ames, Iowa, US)
- 19 – 23/6/2017 **Organiser** of the international conference 'Preservers Everywhere' (Szeged, Hungary), webpage: <http://www.math.u-szeged.hu/~gehergy/conference.html>
- 11 – 15/7/2016 **Organiser** of the mini-symposium 'Recent Developments in Non-linear Preservers' at the '20<sup>th</sup> Conference of the International Linear Algebra Society' (ILAS 2016), (Leuven, Belgium)
- 9 – 10/4/2016 **Organiser** of the Hungarian conference 'Functional Analysis Meets Linear Algebra' (Szeged, Hungary), webpage of the event: <http://neumann.math.unideb.hu/analizis/sites/hun/lendulet/FAMLA/content.html>
- 9/2014 – 5/2016 **Organiser** of the PhD Weekly Seminar at the Bolyai Institute, University of Szeged (Szeged, Hungary)
- 24 – 28/6/2013 **Assistant organiser** of the 'Szőkefalvi-Nagy Centennial Conference' (Szeged, Hungary)

### Participations in projects

- 1/9/2018 – 31/8/2021 **Principal Investigator**, Leverhulme Trust Early Career Fellowship, Project title: 'Entanglement entropy in quantum spin chains'
- 30/6 – 7/7/2017 **Principal Investigator**, London Mathematical Society Grant, Research in Pairs (Scheme 4), Support of collaborative research with Professor Peter Šemrl (Reference No.: 41642)
- 10/2016 – 12/2017 **Researcher**, Grant from the Engineering and Physical Sciences Research Council (EPSRC, EP/M024784/1).  
Principal Investigator: Jani Virtanen (University of Reading, Reading, UK)
- 7/2015 – 6/2019 **Researcher**, Grant from the Hungarian National Research, Development and Innovation Office (NKFIH, K115383).  
Principal Investigator: Lajos Molnár (University of Szeged, Szeged, Hungary)
- 10/2015 – 9/2016 **Research Assistant**, MTA-SZTE Analysis and Stochastics Research Group (funded by the Hungarian Academy of Sciences)  
Principal Investigator: Vilmos Totik (University of Szeged, Szeged, Hungary)
- 7/2013 – 9/2015 **Research Assistant**, MTA-DE „Lendület” Functional Analysis Research Group (funded by the Hungarian Academy of Sciences)  
Principal Investigator: Lajos Molnár (University of Debrecen, Debrecen, Hungary)
- 1/2015 – 12/2016 **Researcher**, 'HAS-MOST Hungarian-Taiwanese bilateral research project'.  
Principal Investigators: Ngai-Ching Wong (National Sun Yat-sen University, Kaohsiung, Taiwan) and Lajos Molnár (University of Szeged, Szeged, Hungary)
- 1/2011 – 12/2012 **Researcher**, Hungarian-Romanian Cross-border Research on Functional Analysis and Differential Equations (HURO/1001/264/2.2.3.).  
Principal Investigators: Dan Popovici (West University of Timisoara, Timisoara, Romania), László Kérchy (University of Szeged, Szeged, Hungary) and Gergely Röst (University of Szeged, Szeged, Hungary)

### Selected list of conference talks and poster presentations

- 18 – 21/6/2018 **Invited speaker**, Preservers: Modern Aspects and New Directions (Belfast, UK)  
<https://sites.google.com/site/nipreservers/home>
- 11/5/2018 **Invited speaker**, Orthogonal Polynomials, Special Functions and Operator Theory and Applications (London, UK)

- 14 – 18/8/2017 International Workshop on Operator Theory and its Applications (IWOTA), (Chemnitz, Germany)
- 24 – 28/7/2017 **Invited speaker**, 2017 Meeting of the International Linear Algebra Society (ILAS), 'Linear Algebra and Geometry' mini-symposium (Ames, Iowa, US)
- 15 – 16/8/2016 **Invited speaker**, Operator Theory Workshop (Reading, UK)
- 11 – 15/7/2016 20<sup>th</sup> Conference of the International Linear Algebra Society (ILAS), (Leuven, Belgium)
- 27 – 29/5/2016 **Invited speaker**, International Workshop on Applied Analysis and Optimization (Taichung, Taiwan)
- 17 – 18/10/2015 AMS Sectional Meeting – Fall South-Eastern Sectional Meeting, (Memphis, Tennessee, US)
- 15 – 16/10/2015 *Poster presentation*, Problems and Recent Methods in Operator Theory Workshop, (Memphis, Tennessee, US)
- 7 – 11/9/2015 Mat Triad 2015 (Coimbra, Portugal)
- 3 – 5/9/2014 International Workshop on Operator Theory 2014 (Belfast, UK)
- 4 – 12/6/2014 The 7<sup>th</sup> Linear Algebra Workshop (Ljubljana, Slovenia)
- 16 – 20/12/2013 International Workshop on Operator Theory and its Applications (IWOTA), (Bangalore, India)
- 29/7 – 4/8/2013 Banach Algebras and Applications (Göteborg, Sweden)
- 20 – 24/5/2013 Hilbert Function Spaces (Gargnano, Italy)
- 27 – 31/8/2012 Spectral Theory and Differential Operators (Graz, Austria)
- 2 – 7/7/2012 24<sup>th</sup> International Conference on Operator Theory (Timisoara, Romania)

#### Academic visits

- 1/4 – 6/4/2017 Alexander Its, Indiana University–Purdue University Indianapolis (Indianapolis, US)
- 27/11 – 2/12/2016 Maria Cristina Câmara, Instituto Superior Técnico, Universidade de Lisboa (Lisbon, Portugal)
- 16 – 26/5/2016 Ngai-Ching Wong, National Sun Yat-sen University (Kaohsiung, Taiwan)
- 11 – 15/4/2016 Paul Busch, University of York (York, UK)
- 17 – 22/5/2015 Peter Šemrl, University of Ljubljana (Ljubljana, Slovenia)
- 11 – 15/10/2014 Bojan Kuzma, University of Primorska (Koper, Slovenia)
- 5 – 11/10/2014 Peter Šemrl, University of Ljubljana (Ljubljana, Slovenia)
- 27 – 29/3/2013 Lajos Molnár, University of Debrecen (Debrecen, Hungary)
- 1 – 8/2/2013 Rupert H. Levene, University College Dublin (Dublin, Ireland)

#### Selected list of seminar talks

- 8/3/2018 Institute of Science and Technology Austria (Klosterneuburg, Austria), 'Mathematical Physics Seminar'
- 4/4/2017 Indiana University–Purdue University Indianapolis (Indianapolis, US), 'Mathematical Physics Seminar'
- 7/2/2017 Oxford University (Oxford, UK), 'Functional Analysis Seminar'
- 29/11/2016 Instituto Superior Técnico, Universidade de Lisboa (Lisbon, Portugal), 'Analysis, Geometry, and Dynamical Systems Seminar'
- 12/4/2016 University of York (York, UK), 'Quantum Information Seminar'
- 16/3/2016 Budapest University of Technology and Economics (Budapest, Hungary), 'Analysis Seminar'
- 21/5/2015 University of Ljubljana (Ljubljana, Slovenia), 'Linear Algebra Seminar'

13/5/2015	Alfréd Rényi Institute of Mathematics, Hungarian Academy of Sciences (Budapest, Hungary), 'Functional Analysis Seminar'
10/10/2014	University of Ljubljana (Ljubljana, Slovenia), 'Linear Algebra Seminar'
5/2/2013	University College Dublin (Dublin, Ireland), 'Analysis Seminar'

### **Academic service**

I am a reviewer of MathSciNet

I have been a referee for papers submitted to the following journals: *Journal of Functional Analysis*, *Journal of Mathematical Analysis and Applications*, *Linear Algebra and its Applications*, *Linear and Multilinear Algebra*, *Houston Journal of Mathematics*, *Aequationes Mathematicae*, *Acta Mathematica Hungarica*, *Acta Scientiarum Mathematicarum*, *Mathematica Slovaca*, *Mediterranean Journal of Mathematics*, *Monatshefte für Mathematik*, *Periodica Mathematica Hungarica*, *Special Matrices*, *Taiwanese Journal of Mathematics*, *Topology and its Applications*.

### **Teaching activities**

I led several tutorials since 2007.

So far I taught the following lecture/seminar courses since 2012:

- Undergraduate Seminar (for *talented/well-motivated* 1<sup>st</sup>-4<sup>th</sup> year Mathematics students), University of Reading, 2017 autumn and 2018 spring terms
- Operator Theory (4<sup>th</sup> year MMATH students), University of Reading, 2017 spring term, with J.A. Virtanen
- Interesting Problems in Analysis Seminar (for *talented/well-motivated* Mathematics BSc students), University of Szeged, 2016 spring term
- Functions of Several Variables: an Introduction (Mathematics BSc students), University of Szeged, 2015 autumn term
- Differential and Integral Calculus (Mathematics BSc students), University of Szeged, 2015 spring term
- Calculus for Physics 1 (Physics BSc students), University of Szeged, 2014 autumn term
- Introduction to Analysis (Mathematics BSc students), University of Szeged, 2014 autumn term
- Calculus for Physics 2 (Physics BSc students), University of Szeged, 2014 spring term
- Introduction to Numerical Analysis (Physics BSc students), University of Szeged, 2014 spring term
- Mathematics 1 (Chemistry BSc students), University of Szeged, 2012-2013 autumn terms
- Problem Solving Seminar (for *talented/well-motivated* Mathematics BSc students), University of Szeged, 2012 autumn term
- Functional Analysis (Physics BSc students), University of Szeged, 2012 spring term

Supervision of undergraduate students:

- Three 3<sup>rd</sup> year projects in the academic year 2017-2018: Eleanor Day, Harry Venables, Sarah Venkatesh

### **Outreach activities**

11/2017 – present	STEM Ambassador
2017	Pontpozicionálás távolságméréssel (English translation: Point positioning by measuring distances), science popularising article in the 'ERINTŐ' Hungarian electronic journal, accepted
28/1/2015	Mathematics popularising lecture, Kossuth Lajos Secondary School, Cegléd, Hungary

- 28/4/2012 Mathematics popularising lecture, 'Egyetemi Tavasz', University of Szeged, Szeged, Hungary
- 24/4/2010 **Organiser**, Mathematics session of the 'Egyetemi Tavasz' (Spring at the University) science popularising event-series for secondary school students, University of Szeged, Szeged, Hungary