

# Curriculum Vitae

Dániel Virosztek

## 1 Personal information

- Date of birth: 5th November 1989
- Place of birth: Charlottesville (USA)
- Nationality: Hungarian
- E-mail address: virosztek.daniel@renyi.hu
- Webpage: <https://users.renyi.hu/~dviroszt>
- married, two kids (born in 2015 and 2019)



## 2 Scientific activities

Research field: optimal transport, quantum information theory, functional analysis, preserver problems

### Positions

- October 2021 - September 2026: head of the *MTA RI "Momentum" Optimal Transport and Quantum Information Geometry Research Group*, Alfréd Rényi Institute of Mathematics
- October 2019 - September 2021: Marie Skłodowska-Curie postdoctoral research fellow at the Erdős group, IST Austria
- October 2017 - September 2019: postdoctoral research fellow (supported by ISTFellowship) at the Erdős group, IST Austria
- July 2017 - September 2017: research fellow at the Functional Analysis Research Group, Bolyai Institute, University of Szeged
- September 2016 - August 2017: postdoctoral research fellow at the Department of Analysis, Budapest University of Technology and Economics (full time)
- July 2015 - June 2017: assistant research fellow at the MTA-DE "Lendület" Functional Analysis Research Group, Hungarian Academy of Sciences (part-time)

### Participation in third party funded projects

- 01/10/2021 - 30/09/2026 *Principal Investigator*, "Momentum" research grant of the Hungarian Academy of Sciences (project no. LP2021-15/2021), ~ €512,400
- 01/10/2019 - 30/09/2021 *Principal Investigator*, Marie Skłodowska-Curie Grant of the European Commission (project no. 846294), €186,164
- 01/10/2017 - 30/09/2019 *Principal Investigator*, ISTFellow grant funded by the European Commission and the Institute of Science and Technology Austria (project code: IC1027FELL01), €140,225

- 01/12/2018 - 30/11/2020, *Researcher*, Grant from the Hungarian National Research, Development and Innovation Office (NKFIH, KH129601). Principal Investigator: Milán Mosonyi (Budapest University of Technology and Economics)
- 01/09/2017 - 31/08/2021, *Researcher*, Grant from the Hungarian National Research, Development and Innovation Office (NKFIH, K124152). Principal Investigator: Milán Mosonyi (Budapest University of Technology and Economics)
- 01/07/2015 - 30/06/2017 *Assistant research fellow*, MTA-DE "Lendület" ("Momentum") Functional Analysis Research Group (funded by the Hungarian Academy of Sciences) Principal Investigator: Lajos Molnár (University of Debrecen)
- 01/09/2013 - 31/08/2017, *Researcher*, Grant from the Hungarian National Research, Development and Innovation Office (NKFIH, K104206). Principal Investigators: Dénes Petz and Máté Matolcsi (Rényi Institute, Hungarian Academy of Sciences)
- 01/05/2013 - 31/07/2013, *Researcher*, Grant from the Hungarian National Research, Development and Innovation Office (NKFIH, K83440). Principal Investigator: Katalin Hangos (Institute for Computer Science and Control, Hungarian Academy of Sciences)

## Selected publications

([Click here](#) for a complete list of publications with independent citations.)

- (1) D. Viosztek, The metric property of the quantum Jensen-Shannon divergence. *Adv. Math.* **380** (2021), 107595.
- (2) G.P. Gehér, T. Titkos, D. Viosztek, Isometric study of Wasserstein spaces — the real line. *Trans. Amer. Math. Soc.* **373** (2020), 5855–5883.
- (3) J. Pitrik, D. Viosztek, Quantum Hellinger distances revisited. *Lett. Math. Phys.* **110** (2020), 2039–2052.
- (4) D. Viosztek, Jointly convex quantum Jensen divergences. *Linear Algebra Appl.* **576** (2019), 67–78.
- (5) D. Viosztek, Connections between centrality and local monotonicity of certain functions on  $C^*$ -algebras. *J. Math. Anal. Appl.* **453** (2017), 221–226.
- (6) D. Viosztek, Maps on quantum states preserving Bregman and Jensen divergences. *Lett. Math. Phys.* **106** (2016), 1217–1234.
- (7) D. Viosztek, Quantum  $f$ -divergence preserving maps on positive semidefinite operators acting on finite dimensional Hilbert spaces. *Linear Algebra Appl.* **501** (2016), 242–253.
- (8) L. Molnár, D. Viosztek, Continuous Jordan triple endomorphisms of  $\mathbb{P}_2$ . *J. Math. Anal. Appl.* **438** (2016), 828–839.
- (9) J. Pitrik, D. Viosztek, On the joint convexity of the Bregman divergence of matrices, *Lett. Math. Phys.* **105** (2015), 675–692.
- (10) D. Petz, D. Viosztek, Some inequalities for quantum Tsallis entropy related to the strong subadditivity, *Math. Inequal. Appl.* **18** (2015), 555–568.

## Selected conference and seminar talks

([Click here](#) for a complete list of conference and seminar talks.)

- (1) AMS-SMF-EMS joint international meeting, section "Quantitative Geometry of Transportation Metrics", invited talk, 18-22/07/2022 (upcoming)
- (2) Summer School on Current Topics in Mathematical Physics — a satellite meeting of the XX. International Congress of Mathematical Physics, University of Zürich, Switzerland, talk, 20/07/2021

- (3) 8th European Congress of Mathematics, Portorož, Slovenia, invited talk at the Minisymposium *Recent Developments on Preservers*, 24/06/2021
- (4) Lomonosov Moscow State University, Moscow, Russia, invited seminar talk, 17/02/2020
- (5) 8th LMS OPSFOTA Meeting and 4th Operator Theory Workshop, Reading, United Kingdom, invited talk, 22/11/2019
- (6) Analysis Seminar Innsbruck, Innsbruck, Austria, invited talk, 16/11/2019
- (7) 30th International Workshop on Operator Theory and Applications, University of Lisbon, Portugal, invited talk 23/07/2019
- (8) LMS Meeting and Operator Theory Workshop, Reading, United Kingdom, invited talk, 04/09/2018
- (9) 29th International Workshop on Operator Theory and Applications, East China Normal University, Shanghai, China, invited talk, 25/07/2018
- (10) 50th Anniversary meeting of the North British Functional Analysis Seminar, Edinburgh, United Kingdom, talk, 12/04/2018
- (11) 21th Conference of the International Linear Algebra Society (ILAS), Iowa State University, Ames, USA, invited talk, 25/07/2017
- (12) OTOA 2016, Indian Statistical Institute, Bangalore, India, invited talk, 19/12/2016
- (13) Operator Algebras Seminar, University of Rome Tor Vergata, Rome, Italy, invited seminar talk, 23/11/2016
- (14) 20th Conference of the International Linear Algebra Society (ILAS), KU Leuven, Leuven, Belgium, invited talk, 11/07/2016
- (15) International Workshop on Applied Analysis and Optimization, Taichung, Taiwan, invited talk, 28/05/2016

## Organization

- (with *J. Maas*, *S. Rademacher*, and *T. Titkos*) Organization of the *Optimal Transport on Quantum Structures* thematic semester at the Erdős Center of the Rényi Institute, Sept-Dec 2022.
- Co-organization of the *AnMath 2022 - 2nd Analysis Mathematica International Conference*, 15-19/08/2022
- (with *G. P. Gehér*, and *T. Titkos*) Organization of the *Functional Analysis and Operator Theory Webinar* online lecture series, May 2020 – April 2021
- local organizer: *Preservers Everywhere* Conference, University of Szeged, Hungary, 19-23/06/2017

## Editorial responsibilities

Since January 2019: Editor, *Analysis Mathematica*

## Reviewing activities

### Referee for grants

Hungarian National Research, Development and Innovation Office (NKFIH), OTKA K\_20, Hungary, 2020

## Referee for journals

Acta Mathematica Hungarica, Acta Scientiarum Mathematicarum (Szeged), Advances in Mathematics, Analysis Mathematica, Banach Journal of Mathematical Analysis, Bulletin of the Australian Mathematical Society, Collectanea Mathematica, Communications in Mathematical Physics, Entropy, IEEE Transactions on Information Theory, Journal of Mathematical Analysis and Applications, Journal of Mathematical Physics, Letters in Mathematical Physics, Linear Algebra and its Applications, Linear and Multilinear Algebra, Monatshefte für Mathematik, Periodica Mathematica Hungarica, Physica A: Statistical Mechanics and its Applications, Reviews in Mathematical Physics

## Miscellaneous referee work

AMS Reviews

## Memberships

- Public body of the Hungarian Academy of Sciences

## 3 Studies

- 2013 - 2016: PhD studies at the Budapest University of Technology and Economics, Faculty of Natural Sciences (BME TTK), Doctoral School of Mathematics and Computer Science. The grade of the degree being: summa cum laude
- 2011 - 2013: MSc in Mathematics at BME TTK, the grade of the degree being: excellent with highest honours
- 2008 - 2011: BSc in Mathematics at BME TTK, the grade of the degree being: excellent

## 4 Prizes, awards, competitive fellowships

- "Momentum" research grant of the Hungarian Academy of Sciences (2021)
- Géza Grünwald Commemorative Prize of the János Bolyai Mathematical Society (2019)
- "Marie Skłodowska-Curie" Individual Fellowship of the European Commission (2019)
- "ISTFellow" postdoctoral fellowship at the Institute of Science and Technology Austria (2017)
- "János Bolyai" Scholarship of the Hungarian Academy of Sciences (2017)
- "For the Young Talents of the Nation" scholarship of the Hungarian State (2015)
- Accentuated scholarship of the Doctoral School of Mathematics and Computer Science, Budapest University of Technology and Economics (2015)
- Gyula Kónig Young Researcher Award (2015)
- Honourable mention - "Schweitzer Miklós" Mathematics Competition (2013)
- "Excellent Student of the Faculty" Award of the Faculty of Natural Sciences, Budapest University of Technology and Economics (2013, 2011)
- First Prize - National Scientific Students' Conference, Hungary (2013)
- First Prize - Mathematics Competition of the Budapest University of Technology and Economics (2013)
- Third Prize - International Mathematics Competition for University Students (2010)

## 5 Teaching activities

- 2020 Fall: Course instructor: Maths for quantitative life scientists: Linear Algebra, *Institute of Science and Technology Austria*
- 2010 - 2017: Teaching assistant in the following courses: analysis, functional analysis, differential equations, and differential geometry for mathematicians; differential equations for physicists; differential equations, complex analysis, vector analysis, and linear algebra for engineering students at the *Budapest University of Technology and Economics, Institute of Mathematics*

## 6 Personal abilities

- Language knowledge: Hungarian (native), English (fluent), German (basic)
- Computer skills: user level: Mathematica, L<sup>A</sup>T<sub>E</sub>X