



# Tommaso Russo

## Curriculum Vitae

### Personal Information

Date of Birth June 4th, 1991  
Gender Male  
Nationality Italian  
Address šitná 25, 115 67 Prague 1, Nové Město  
Czech Republic  
Phone +420 222 090 743  
Email russo@math.cas.cz (current)  
russotom@fel.cvut.cz (former)  
tommaso.russo.math@gmail.com (permanent)  
LinkedIn [www.linkedin.com/in/tommaso-russo-65146a156](http://www.linkedin.com/in/tommaso-russo-65146a156)  
ResearchGate [www.researchgate.net/profile/Tommaso\\_Russo4](http://www.researchgate.net/profile/Tommaso_Russo4)  
ORCID 0000-0003-3940-2771

### Current Position

#### Research field

Functional Analysis, Geometry of Banach spaces, Non-separable Banach spaces, Biorthogonal systems, Differentiability and renormings, Descriptive Topology, Non-linear Functional Analysis.

07/2020 12/2022 **Post-Doc**

Institute of Mathematics of the Czech Academy of Sciences.

šitná 25, 115 67 Prague 1, Czech Republic.

Project: Banach spaces of continuous and Lipschitz functions, Grant GF20-22230L

Principal Investigator: Prof. Wiesław Kubiś.

09/2020 12/2022 **Assistant Professor**

Department of Mathematics of the Faculty of Electrical Engineering

Czech Technical University in Prague.

Technická 2, 166 27 Prague 6, Czech Republic.

### Previous Positions

09/2018 08/2020 **Post-Doc**

Department of Mathematics of the Faculty of Electrical Engineering

Czech Technical University in Prague.

Technická 2, 166 27 Prague 6, Czech Republic.

Project: OPVVV mobility CZ.02.2.69/0.0/0.0/16\_027/0008465

Mentor: Prof. Petr Hájek.

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## Education and Training

10/2015 09/2018 [Ph.D. in Mathematical Sciences](#)

Università degli Studi di Milano, Department of Mathematics 'Federigo Enriques'  
Via Cesare Saldini 50, 20133 Milano, Italy.

Advisor: Prof. Clemente Zanco (Università degli Studi di Milano).

Co-advisor: Prof. Petr Hájek (Czech Academy of Sciences and Czech Technical University in Prague).

Thesis: On some open problems in Banach space theory.

Defended: February 1, 2019

Final grade: Excellent.

Title: Ph.D. in Mathematical Sciences.

09/2013 09/2015 [Master degree in Mathematics](#)

Università degli Studi di Milano, Milano, Italy.

Curriculum: general mathematics. Courses followed: Mathematical Analysis (basic and advanced), Geometry, Probability theory, Numerical Analysis, Mathematical Physics (basic).

Thesis: Banach spaces of (almost) universal disposition

Defended: September 24, 2015

Supervisor: Prof. Clemente Zanco

Title: Master degree in Mathematics. Final mark: 110/110 cum laude.

09/2010 07/2013 [Bachelor degree in Mathematics](#)

Università degli Studi di Milano, Milano, Italy.

Curriculum: general mathematics.

Title of the seminar for the final exam: Breve 'tour' sul riarrangiamento di funzioni (A short survey on rearrangements of functions).

Title: Bachelor degree in Mathematics. Final mark: 110/110 cum laude.

09/2005 07/2010 [High School Education](#)

Liceo Scientifico Niccolò Machiavelli, Pioltello (MI), Italy.

Diploma di maturità scientifica. Final mark: 100/100 cum laude.

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## Publications

### Preprints

3. S. Dantas, P. Hájek, and T. Russo, Smooth norms in dense subspaces of  $\ell_p()$  and operator ranges, arXiv:2205.11282.
2. P. Leonetti, T. Russo, and J. Somaglia, Dense lineability and spaceability in certain subsets of  $\ell_1$ , arXiv:2203.08662.
1. S. Dantas, P. Hájek, and T. Russo, Smooth and polyhedral norms via fundamental biorthogonal systems, arXiv:2201.03379.

### Accepted papers

1. P. Hájek and T. Russo, Projecting Lipschitz functions onto spaces of polynomials, Mediterr. J. Math. (to appear). arXiv:2102.02778.

### Articles

11. T. Russo and J. Somaglia, Weakly Corson compact trees, Positivity 26 (2022), 33. arXiv:2106.11830.

Czech Academy of Sciences Štřitná 25, 115 67 Prague 1

B tommaso.russo.math@gmail.com | math.fel.cvut.cz/en/people/russotom/

2/8

10. P. Hájek, T. Russo, J. Somaglia, and S. Todorčević, AN ASPLUND SPACE WITH NORMING MARKUŠEVIČ BASIS THAT IS NOT WEAKLY COMPACTLY GENERATED, *Adv. Math.* **392** (2021), 108041. arXiv: 2007.14201.
9. C. Correa, T. Russo, and J. Somaglia, SMALL SEMI-EBERLEIN COMPACTA AND INVERSE LIMITS, *Topology Appl.* **302** (2021), 107835. arXiv: 2101.08820.
8. T. Russo and J. Somaglia, OVERCOMPLETE SETS IN NON-SEPARABLE BANACH SPACES, *Proc. Amer. Math. Soc.* **149** (2021), 701–714. arXiv: 1912.08690.
7. P. Hájek, T. Kania, and T. Russo, SEPARATED SETS AND AUERBACH SYSTEMS IN BANACH SPACES, *Trans. Amer. Math. Soc.* **373** (2020), 6961–6998. arXiv: 1803.11501.
6. P. Hájek and T. Russo, ON DENSELY ISOMORPHIC NORMED SPACES, *J. Funct. Anal.* **279** (2020), 108667. arXiv: 1910.01527.
5. S. Dantas, P. Hájek, and T. Russo, SMOOTH NORMS IN DENSE SUBSPACES OF BANACH SPACES, *J. Math. Anal. Appl.* **487** (2020), 123963. arXiv: 1911.09611.
4. T. Russo, A NOTE ON SYMMETRIC SEPARATION IN BANACH SPACES, *Rev. R. Acad. Cienc. Exactas Fís. Nat. Ser. A Mat. RACSAM* **113** (2019), 3649–3658. arXiv: 1904.12598.
3. P. Hájek and T. Russo, AN UNCOUNTABLE VERSION OF PTÁK’S COMBINATORIAL LEMMA, *J. Math. Anal. Appl.* **470** (2019), 1070–1080. arXiv: 1805.06028.
2. P. Hájek, T. Kania, and T. Russo, SYMMETRICALLY SEPARATED SEQUENCES IN THE UNIT SPHERE OF A BANACH SPACE, *J. Funct. Anal.* **275** (2018), 3148–3168. arXiv: 1711.05149.
1. P. Hájek and T. Russo, SOME REMARKS ON SMOOTH RENORMINGS OF BANACH SPACES, *J. Math. Anal. Appl.* **455** (2017), 1272–1284. arXiv: 1705.01384.

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## Plenary Talks

May 13, 2022 *Smoothness in normed spaces*, Workshop on Banach spaces and Banach lattices II, Madrid, Spain.

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## Invited Talks

- September 2022 *Linear subspaces of  $\ell_\infty$  with fixed number of accumulation points*, IWOTA 2022: 33<sup>rd</sup> International Workshop on Operator Theory and its Applications, 30 minutes, Kraków, Poland.
- May 25, 2022 *Walks on ordinals and scattered compact spaces*, Seminar on Reckoning, 90 minutes, Institute of Mathematics of the Czech Academy of Sciences, Prague, Czech Republic.
- March 18, 2021 *(1+)-meters apart: Separated sets in Covid times*, Functional analysis seminar, 90 minutes, online weekly seminar at Institute of Mathematics and Statistics, University of Tartu, Estonia, organised by Rainis Haller.
- August 28, 2020 *Asplund spaces with norming Markušević bases*, Banach spaces webinars, 60 minutes, online weekly seminar at University of North Texas, organised by Bünyamin Sari.
- June 23, 2020 *Asplund spaces and norming Markušević bases*, Set Theory and Analysis seminar, 90 minutes, Institute of Mathematics of the Czech Academy of Sciences, Prague, Czech Republic.
- January 28, 2020 *Smooth renormings on dense subspaces of Banach spaces*, V Congreso de Jóvenes Investigadores de la RSME, 30 minutes, Castellón, Spain.
- November 8, 2019 *Overcomplete sets in Banach spaces*, Workshop on Abstract Analysis and Convex Analysis, 45 minutes, Università Cattolica, Milano, Italy.

- June 26, 2019 *Auerbach systems in WLD spaces*, Banach Spaces and their Applications, 20 minutes, Lviv, Ukraine.
- February 12, 2019 *Separation and Reflexivity*, Setffa – Set Theory and Functional Analysis seminar, 90 minutes, Institute of Mathematics of the Czech Academy of Sciences, Prague, Czech Republic.
- November 9, 2018 *Weak compactness, double limits, and a combinatorial lemma*, Workshop in Abstract and Convex Analysis, 40 minutes, Università Cattolica, Milano, Italy.
- September 18, 2018 *Systems of coordinates in WLD Banach spaces*, Joint meeting of UMI, SIMAI and PTM, 30 minutes, Wrocław, Poland.
- January 11, 2018 *Separated families of unit vectors: an interplay of geometry and combinatorics*, Banach Afternoon, 1 hour, Università degli Studi di Milano, Italy.
- November 14, 2017 *Symmetrically separated sequences in the unit sphere of a Banach space*, Setffa – Set Theory and Functional Analysis seminar, 90 minutes, Institute of Mathematics of the Czech Academy of Sciences, Prague, Czech Republic.

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## Talks

- September 2022 *Walks on ordinals, Asplund spaces, and norming Markušević bases*, Progress in Functional Analysis: Methods and Applications, 25 minutes, Lecce, Italy.
- July 2022 *An Asplund space with norming  $M$ -basis that is not WCG*, TOPOSYM 2022: Prague Symposia on General Topology, 25 minutes, Prague, Czech Republic.
- July 2022 *Weakly Corson compact trees*, 36<sup>th</sup> Summer Topology Conference, 25 minutes, Vienna, Austria.
- June 2022 *Smooth norms and biorthogonal systems*, Functional Analysis in Lille, 30 minutes, Lille, France.
- January 30, 2022 *Hunting vector spaces inside non-linear objects*, Winter School in Abstract Analysis: section Set Theory & Topology, 25 minutes, Hejnice, Czech Republic.
- January 10, 2022 *Smooth and polyhedral norms via fundamental biorthogonal systems*, 49<sup>th</sup> Winter School in Abstract Analysis, 25 minutes, Štěpánov, Czech Republic.
- January 12, 2020 *How different can two dense subspaces of a Banach space be?*, 48<sup>th</sup> Winter School in Abstract Analysis, 25 minutes, Svratka, Czech Republic.
- November 17, 2019 *What do dense subspaces of Hilbert spaces look like?*, Analysis Seminar, 20 minutes, Innsbruck, Austria.
- September 11, 2019 *Projections onto spaces of polynomials*, Workshop on Banach spaces and Banach lattices, 30 minutes, Madrid, Spain.
- June 17, 2019 *On densely isomorphic normed spaces*, Banach spaces and optimization: Conference on the occasion of Robert Deville's 60th birthday, 20 minutes, Métabief, France.
- January 18, 2019 *An uncountable version of Pták's lemma*, 47<sup>th</sup> Winter School in Abstract Analysis, 20 minutes, Svratka, Czech Republic.
- September 24, 2018 *On some open problems in Banach space theory*, presentation of the PhD thesis, 15 minutes, Milan, Italy
- June 27, 2018 *On Auerbach systems in Banach spaces*, Geometrical aspects of Banach spaces, 30 minutes, Birmingham, England.
- June 09, 2018 *Separated families of unit vectors*, Analysis Seminar, 25 minutes, Traunkirchen, Austria.
- January 14, 2018 *Symmetrically separated sequences in the unit sphere of a Banach space*, 46<sup>th</sup> Winter School in Abstract Analysis, 30 minutes, Svratka, Czech Republic.
- June 22, 2017 *Smooth approximations of norms with asymptotic improvement*, Septièmes Journées Besançon-Neuchâtel d'analyse fonctionnelle, 20 minutes, Besançon, France.

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- March 29, 2017 *Lipschitz functions in Banach spaces I* (first part of a joint seminar with J. Somaglia), SAA – Seminario di Analisi Astratta, 1 hour, Università degli Studi di Milano, Italy.
- June 13, 2016 *The nonlinear Geometry of Banach spaces*, PhD<sup>2</sup> – PhD Days, 1 hour, Università degli Studi di Milano, Italy.

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## Poster Presentations

- March 5–9, 2018 *Separated Families of Unit Vectors*, Non Linear Functional Analysis, at CIRM - Luminy, Marseille, France.

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## Organiser Activity

- Jul. 7–8, 2022 Workshop *Algebras of Operators and  $C^*$ -algebras*, Czech Academy of Sciences, Czech Republic. Organised with T. Bice, B. Horváth, and K. Strung.
- A.Y. 21/22 *Algebras of Operators on Banach Spaces and Operator Algebras*, Introduction to research course for the Master degree in Mathematics at Charles University in Prague. Organised with B. Horváth.
- Apr. 9 and 16, 2021 Workshop *Banach Afternoons*, Università degli Studi di Milano, Italy. Organised with C.A. De Bernardi, J. Somaglia, and L. Veselý.
- Jul. 6, 2018 *PhD<sup>2</sup> – PhD Days* (3<sup>rd</sup> edition), Università degli Studi di Milano, Italy.

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## Referee and Reviewer Activity

- Referee *Journal of Functional Analysis, Arab Journal of Mathematical Sciences, Israel Journal of Mathematics, Taiwanese Journal of Mathematics, Studia Mathematica.*
- Reviewer ZbMath.

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## Conferences, Workshops, and Schools

- September 19–21, 2022 *Progress in Functional Analysis: Methods and Applications*, Lecce, Italy.
- September 6–10, 2022 *IWOTA 2022: 33<sup>rd</sup> International Workshop on Operator Theory and its Applications* Kraków, Poland.
- July 25–29, 2022 *TOPOSYM 2022: Prague Symposia on General Topology*, Prague, Czech Republic.
- July 18–22, 2022 *36<sup>th</sup> Summer Topology Conference*, Vienna, Austria.
- June 27–July 1, 2022 *Functional Analysis in Lille: a conference in honour of Gilles Godefroy*, Lille, France.
- May 9–13, 2022 *Workshop on Banach spaces and Banach lattices II*, Madrid, Spain.
- January 29–February 5, 2022 *Winter School in Abstract Analysis 2022: section Set Theory & Topology*, Hejnice, Czech Republic.
- January 8–15, 2022 *49<sup>th</sup> Winter School in Abstract Analysis*, Sňěžné, Czech Republic.
- October 24–30, 2021 *Workshop on Generic Structures*, Prague, Czech Republic.
- June 23–24, 2021 *Two Days in Real Analysis*, online TEAMS event, Caserta, Italy.
- June 14–17, 2021 *Four Days in Linear Dynamics*, online TEAMS event, Caserta, Italy.
- January 27–31, 2020 *V Congreso de Jóvenes Investigadores de la RSME*, Castellón, Spain.
- January 11–18, 2020 *48<sup>th</sup> Winter School in Abstract Analysis*, Svatka, Czech Republic.
- December 6–9, 2019 *22<sup>nd</sup> Colloquiumfest*, Prague, Czech Republic.
- November 15–17, 2019 *Analysis Seminar*, Innsbruck, Austria.
- November 8, 2019 *Workshop on Abstract Analysis and Convex Analysis*, Università Cattolica del Sacro Cuore, Milano, Italy.

- September 9–13, 2019 *Workshop on Banach spaces and Banach lattices*, Madrid, Spain.
- June 26–29, 2019 *Banach Spaces and their Applications*, Lviv, Ukraine.
- June 16–21, 2019 *Banach spaces and optimization: Conference on the occasion of Robert Deville's 60th birthday*, Métabief, France.
- January 12–19, 2019 *47<sup>th</sup> Winter School in Abstract Analysis*, Svatka, Czech Republic.
- November 9, 2018 *Workshop in Abstract and Convex Analysis*, Università Cattolica del Sacro Cuore, Milano, Italy.
- September 17–20, 2018 *Joint meeting of the Italian Mathematical Union, the Italian Society of Industrial and Applied Mathematics and the Polish Mathematical Society*, Wrocław, Poland.
- June 25–29, 2018 *Geometrical aspects of Banach spaces*, Birmingham, England.
- June 8–10, 2018 *Analysis Seminar*, Traunkirchen, Austria.
- March 5–9, 2018 *Non Linear Functional Analysis*, at CIRM - Luminy, Marseille, France.
- January 13–20, 2018 *46<sup>th</sup> Winter School in Abstract Analysis*, Svatka, Czech Republic.
- January 11, 2018 *Banach Afternoon*, Università degli Studi di Milano, Italy.
- October 17–20, 2017 *Conference on Non-Linear Functional Analysis: 5<sup>th</sup> Workshop on Functional Analysis and Workshop on Infinite Dimensional Analysis Valencia 2017*, Valencia, Spain.
- June 20–23, 2017 *Septièmes Journées Besançon–Neuchâtel d'analyse fonctionnelle*, Besançon, France.
- May 14–18, 2017 *Geometric Topology and Geometry of Banach spaces*, Eilat, Israel.
- January 14–21, 2017 *45<sup>th</sup> Winter School in Abstract Analysis*, Svatka, Czech Republic.
- September 29–30, 2016 *Workshop Interactions between Algebra and Functional Analysis* Prague, Czech Republic.
- August 21–27, 2016 *Scuola estiva di Logica*, Gargnano, Italy.
- January 16–23, 2016 *44<sup>th</sup> Winter School in Abstract Analysis*, Svatka, Czech Republic.
- October 23–25, 2015 *Analysis Seminar*, Innsbruck, Austria.
- July 27–August 28, 2015 *Corso Estivo di Matematica*, Perugia, Italy. Organized by Scuola Matematica Interuniversitaria (SMI). Courses followed: Functional Analysis and Differential Geometry.
- August 26–31, 2012 *Incontro dei borsisti INDAM*, Perugia, Italy.
- Courses attended during the Ph.D.
- *Alcuni problemi nonlocali dal punto di vista dell'analisi, della geometria e della fisica matematica* (4 CFU, 24 hours) - Proff. E. Cinti and E. Valdinoci.
  - *Linear and nonlinear geometry of Banach spaces* (24 hours) - Prof. P. Hájek.
  - *Argomenti Avanzati di Geometria Algebrica: Gruppi ed Algebre di Lie* (4 CFU, 24 hours) - Proff. G. Bini and L. Van Geemen;
  - *Mathematics of Bose Einstein Condensation and Superfluidity* (3 CFU, 18 hours) - Prof. M. Correggi;
  - *Teoria KAM e riducibilità in equazioni a derivate parziali* (3 CFU, 18 hours) - Prof. D. Bambusi;
  - *Fourier Analysis and Geometric Discrepancy* (5 CFU, 30 hours) - Prof. G. Travaglini (Università di Milano Bicocca).
  - *Logica Matematica 1* (6 CFU, 42 hours, course for the Master degree in Mathematics) - Prof. S. Ghilardi;
  - *Logica Matematica 2* (6 CFU, 42 hours, course for the Master degree in Mathematics) - Prof. V. Marra.

## Teaching

A.Y. 21/22 **Discrete Mathematics and Graphs (BE5B01DMG)**

Czech Academy of Sciences – Žitná 25, 115 67 Prague 1

✉ [tommaso.russo.math@gmail.com](mailto:tommaso.russo.math@gmail.com) • 🌐 [math.fel.cvut.cz/en/people/russotom/](http://math.fel.cvut.cz/en/people/russotom/)

6/8

Bachelor degree in Electrical Engineering at Czech Technical University in Prague.  
Lecturer of the course (42 hours of lectures and 14 hours of labs).

**Algebras of operators on Banach spaces and operator ideals (NMMA651)**

Master degree in Mathematics at Charles University in Prague.

Lecturer of the course (14 hours of lectures), joint with Bence Horváth.

Past A.Y. **Discrete Mathematics and Graphs (BE5B01DMG)**

Bachelor degree in Electrical Engineering at Czech Technical University in Prague.

Lecturer of the course (42 hours of lectures and 14 hours of labs).

Academic years: 2018/2019, 2019/2020, 2020/2021.

**Tutor for the course Real Analysis**

Master degree in Mathematics at Università degli Studi di Milano.

Lecturer: Prof. K. Payne. Correction of homeworks (30 hours).

Academic year: 2017/2018.

**Tutor for the course Mathematical Analysis 2**

Bachelor degree in Mathematics at Università degli Studi di Milano.

Lecturer: Prof. K. Payne. Solution of exercises in class (30 hours).

Academic years: 2014/2015, 2015/2016.

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## Achievements and Honors

September, 2014 1<sup>st</sup> place award, scholarship offered by INDAM for the introduction to research of graduate students in Mathematics. Level of recognition: National.

September 10, 2010 5<sup>th</sup> place award, scholarship offered by INDAM for the project Progetto Lauree Scientifiche. The scholarship was then extended for the subsequent two years. Level of recognition: National.

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## Additional Information

### Visiting Positions

- 02/10/2016 – 03/12/2016: Department of Mathematics and Computer Science at Università di Catania, invited by Prof. D. Puglisi.
- 31/08/2016 – 01/10/2016, 14/01/2017 – 30/06/2017, 05/09/2017 – 02/12/2017, 13/01/2018 – 30/06/2018: Department of Mathematics of the Czech Technical University in Prague, invited by Prof. P. Hájek.

### PhD Student

#### Representative

- 01/2016 – 09/2018: PhD student representative of the XXXI cycle in Collegio Docenti del Dottorato of the Doctoral Program in Mathematical Sciences at Università degli Studi di Milano.
- 01/2016 – 01/2017: PhD student representative in Consiglio di Dipartimento of the Department of Mathematics at Università degli Studi di Milano.

### Student Representative

05/2014 – 09/2015: Student representative in Consiglio di Dipartimento and Collegio Didattico di Matematica, member and vice president of Commissione Paritetica. Elected with the list Lista Ideale, Department of Mathematics of Università degli Studi di Milano.

### GNAMPA

Member of GNAMPA (Gruppo Nazionale per l'Analisi Matematica, la Probabilità e le loro Applicazioni) of INDAM (Istituto Nazionale di Alta Matematica), from October 2014.

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## Personal Skills

- Mother tongue Italian.
- Other languages English (First Certificate in English, B2).
- Computer skills Basic knowledge of programming in C and Matlab.  
Advanced knowledge of  $\LaTeX$  and LyX.
- Sports Athletics, Hiking and Climbing, Tennis, Squash, Skiing, Hurling, Windsurfing.  
Member of the Board and Vice President of the athletics society Athletic Team Pioltello,  
from February 2011 to February 2013.
- Driving Licence B.

Prague, June 13, 2022