

LENKA SLAVÍKOVÁ

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CURRENT POSITION

Assistant Professor

since 2019

Faculty of Mathematics and Physics, Charles University, Czech Republic
(on leave from September 2019 until August 2020, University of Bonn)

PREVIOUS POSITIONS

Hausdorff Postdoc

2019 - 2020

University of Bonn, Germany

Postdoctoral Fellow

2016 - 2019

University of Missouri, Columbia, MO, USA

EDUCATION

Ph.D. in Mathematical Analysis

2016

Faculty of Mathematics and Physics, Charles University, Czech Republic

Thesis: *Weighted inequalities and properties of operators and embeddings on function spaces*

Advisor: Luboš Pick

Master in Mathematical Analysis

2012

Faculty of Mathematics and Physics, Charles University, Czech Republic

Bachelor in Mathematics

2010

Faculty of Mathematics and Physics, Charles University, Czech Republic

PUBLICATIONS AND PREPRINTS

[27] A. Alberico, A. Cianchi, L. Pick and L. Slavíková, *On the modulus of continuity of fractional Orlicz-Sobolev functions*, preprint, arXiv:2401.14667.

[26] K. Domelevo, P. Durcik, V. Fragkiadaki, O. Klein, D. Oliveira e Silva, L. Slavíková and B. Wróbel, *Dimension-free inequalities for low and high degree functions on the Hamming cube*, preprint, arXiv:2401.07699.

[25] P. Durcik, L. Slavíková and C. Thiele, *Norm-variation of triple ergodic averages for commuting transformations*, preprint, arXiv:2307.07372.

[24] G. Dosidis and L. Slavíková, *Multilinear singular integrals with homogeneous kernels near L^1* , Math. Ann., to appear.

[23] A. Alberico, A. Cianchi, L. Pick and L. Slavíková, *Boundedness of functions in fractional Orlicz-Sobolev spaces*, Nonlinear Anal. **230** (2023), Paper No. 113231, 26 pp.

[22] P. Durcik, L. Slavíková and C. Thiele, *Local bounds for singular Brascamp-Lieb forms with cubical structure*, Math. Z. **302** (2022), 2375–2405.

[21] J. Chen, L. Grafakos, D. He, P. Honzík and L. Slavíková, *Bilinear maximal functions associated with surfaces*, Proc. Amer. Math. Soc. **150** (2022), no. 4, 1635–1639.

[20] L. Grafakos, M. Mastyło and L. Slavíková, *A sharp variant of the Marcinkiewicz theorem with multipliers in Sobolev spaces of Lorentz type*, J. Funct. Anal. **282** (2022), no. 3, Paper No. 109295.

[19] A. Alberico, A. Cianchi, L. Pick and L. Slavíková, *Fractional Orlicz-Sobolev embeddings*, J. Math. Pures Appl. **149** (2021), 216–253.

[18] A. Alberico, A. Cianchi, L. Pick and L. Slavíková, *On fractional Orlicz-Sobolev spaces*, Anal. Math. Phys. **11** (2021), no. 2, Paper No. 84, 21 pp.

[17] L. Slavíková, *Bilinear Fourier multipliers and the rate of decay of their derivatives*, J. Approx. Theory **261** (2021), 105485, 25pp.

- [16] A. Alberico, A. Cianchi, L. Pick and L. Slavíková, *On the limit as $s \rightarrow 1^-$ of possibly non-separable fractional Orlicz-Sobolev spaces*, Atti Accad. Naz. Lincei Rend. Lincei Mat. Appl. **31** (2020), no. 4, 879–899.
- [15] A. Alberico, A. Cianchi, L. Pick and L. Slavíková, *On the limit as $s \rightarrow 0^+$ of fractional Orlicz-Sobolev spaces*, J. Fourier Anal. Appl. **26** (2020), no. 6, Paper No. 80, 19pp.
- [14] L. Slavíková, *On the failure of the Hörmander multiplier theorem in a limiting case*, Rev. Mat. Iberoam. **36** (2020), no. 4, 1013 – 1020.
- [13] L. Grafakos, D. He and L. Slavíková, *$L^2 \times L^2 \rightarrow L^1$ boundedness criteria*, Math. Ann. **376** (2020), no. 1 – 2, 431 – 455.
- [12] A. Cianchi, L. Pick and L. Slavíková, *Sobolev embeddings in Orlicz and Lorentz spaces with measures*, J. Math. Anal. Appl. **485** (2020), no. 2, 123827, 31 pp.
- [11] A. Cianchi, L. Pick and L. Slavíková, *Sobolev embeddings, rearrangement-invariant spaces and Frostman measures*, Ann. Inst. H. Poincaré Anal. Non Linéaire **37** (2020), no. 1, 105 – 144.
- [10] L. Grafakos and L. Slavíková, *A sharp version of the Hörmander multiplier theorem*, Int. Math. Res. Not. IMRN 2019, no. 15, 4764 – 4783.
- [9] A. Cianchi, L. Pick and L. Slavíková, *Banach algebras of weakly differentiable functions*, J. Anal. Math. **138** (2019), no. 2, 473 – 511.
- [8] L. Grafakos, D. He and L. Slavíková, *Failure of the Hörmander kernel condition for multilinear Calderón-Zygmund operators*, C. R. Math. Acad. Sci. Paris **357** (2019), no. 4, 382 – 388.
- [7] L. Grafakos and L. Slavíková, *The Marcinkiewicz multiplier theorem revisited*, Arch. Math. (Basel) **112** (2019), no. 2, 191 – 203.
- [6] A. Alberico, A. Cianchi, L. Pick and L. Slavíková, *Sharp Sobolev type embeddings on the entire Euclidean space*, Comm. Pure Appl. Anal. **17** (2018), no. 5, 2011 – 2037.
- [5] P. Cavaliere, A. Cianchi, L. Pick and L. Slavíková, *Norms supporting the Lebesgue differentiation theorem*, Commun. Contemp. Math. **20** (2018), no. 1, 1750020, 33pp.
- [4] L. Slavíková, *On the necessity of bump conditions for the two-weighted maximal inequality*, Proc. Amer. Math. Soc. **145** (2017), 109 – 118.
- [3] L. Slavíková, *Compactness of higher-order Sobolev embeddings*, Publ. Mat. **59** (2015), no. 2, 373 – 448.
- [2] A. Cianchi, L. Pick and L. Slavíková, *Higher-order Sobolev embeddings and isoperimetric inequalities*, Adv. Math. **273** (2015), 568 – 650.
- [1] L. Slavíková, *Almost-compact embeddings*, Math. Nachr. **285** (2012), 1500 – 1516.

AWARDS

Neuron Prize for Promising Scientists in Mathematics, awarded by the Neuron Foundation, Czech Republic	2023
The Czech Mathematical Society Prize for Young Researchers	2022
Forbes 30 Under 30 in the Czech Republic	2017
Third prize at International Mathematics Competition for University Students	2009
Bronze medal at International Mathematical Olympiad	2007

GRANTS

Primus grant PRIMUS/21/SCI/002 from Charles University (principal investigator)	2021 - 2025
Grant no. 23-04720S from the Czech Science Foundation (team member)	2023 - 2025
University center for mathematical modeling, applied analysis and computational mathematics, funded by Charles University (junior researcher)	2023 - 2024
Grant No. 62315 from the Grant Agency of Charles University (principal investigator)	2015 - 2016

SHORT RESEARCH STAYS

PhD student internship, BCAM, Bilbao, Spain (three-month stay)	<i>2016</i>
Visiting PhD student, University of Florence, Italy (one-month stay)	<i>2014</i>

INVITED TALKS AT CONFERENCES AND WORKSHOPS

IWOTA 2023, special session on Harmonic Analysis, Helsinki, Finland	<i>August 2023</i>
Nonlocal Equations: Analysis and Numerics, Bielefeld, Germany	<i>March 2023</i>
Regularity theory for elliptic and parabolic systems and problems in continuum mechanics, Telč, Czech Republic	<i>September 2022</i>
Nonuniformly elliptic problems, IMPAN, Warsaw, Poland	<i>September 2022</i>
Nonlinear Analysis, Function Spaces and Applications (NAFSA 12), Praha, Czech Republic	<i>June 2022</i>
Nonlocal Equations: Analysis and Numerics, Bielefeld, Germany	<i>February 2022</i>
2021 Canadian Mathematical Society Winter Meeting, special session on Harmonic Analysis and Fractal Geometry, Vancouver, Canada (online)	<i>December 2021</i>
Nonlinear Elliptic and Parabolic Partial Differential Equations, Levico Terme, Italy (online)	<i>October 2021</i>
8th European Congress of Mathematics, section Geometric-functional inequalities and related topics, Portorož, Slovenia (online)	<i>June 2021</i>
Congress of Young Researchers RSME, Real Analysis session, Castellón, Spain	<i>January 2020</i>
Siegmundsburg Seminar on Analysis and Theoretical Numerics, Siegmundsburg, Germany	<i>August 2019</i>
10th Function Spaces, Differential Operators and Nonlinear Analysis (FSDONA 2019), Turku, Finland	<i>June 2019</i>
AMS Spring Central Sectional Meeting, Special Session on Recent Advances in Approximation Theory and Operator Theory, Ohio State University, Columbus, OH, USA	<i>March 2018</i>
AMS Spring Eastern Sectional Meeting, Special Session on Current Trends in Function Spaces and Nonlinear Analysis, Hunter College, City University of New York, New York, NY, USA	<i>May 2017</i>
Geometric and Analytic Inequalities, Banff International Research Station, Alberta, Canada	<i>July 2016</i>
Geometric aspects of PDE's and functional inequalities, Cortona, Italy	<i>April 2016</i>

INVITED SEMINAR TALKS

Analysis Seminar, Clemson University, USA (online)	<i>January 2023</i>
Nonlinear Analysis Seminar Series, online	<i>September 2022</i>
Discrete harmonic and harmonic analysis seminar, University of Würzburg, Germany (online)	<i>July 2022</i>
Bi.discrete seminar, University of Bielefeld, Germany (online)	<i>December 2020</i>
CDT PDE Lunchtime Seminar, Mathematical Institute, University of Oxford, United Kingdom	<i>March 2020</i>
Analysis Seminar, University of Nantes, Nantes, France	<i>February 2020</i>
Analysis Seminar, The Ohio State University, Columbus, OH, USA	<i>May 2019</i>
Analysis Seminar, California Institute of Technology, Pasadena, CA, USA	<i>April 2019</i>
Colloquium, Washington University in St. Louis, MO, USA	<i>November 2018</i>
Analysis Seminar, Georgia Institute of Technology, Atlanta, GA, USA	<i>October 2018</i>
Analysis Seminar, University of Wisconsin-Madison, Madison, WI, USA	<i>April 2018</i>
Analysis Seminar, Kansas State University, Manhattan, KS, USA	<i>April 2018</i>

ORGANIZATION OF SCIENTIFIC MEETINGS

Scientific committee member, 11th International Conference on Function Spaces, Differential Operators, and Nonlinear Analysis (FSDONA 2024), Oberhof, Germany *September 2024*

Co-organizer, Minisymposium on Function spaces and related topics, 9th European Congress of Mathematics, Sevilla, Spain *July 2024*

Main organizer, Geometric and functional inequalities, function spaces and PDEs Prague, Czech Republic *February 2023*

Co-organizer, Luboš 60, a conference on the occasion of 60th birthday of Luboš Pick, Železná Ruda, Czech Republic *September 2021*

INSTITUTIONAL RESPONSIBILITIES

Co-organizer of International Prague seminar on function spaces (online), Charles University *since 2022*

Co-organizer of Analysis and PDE seminar, University of Bonn, Germany *2019 – 2020*

Co-organizer of Analysis seminar, University of Missouri, USA *2017*

REVIEWING ACTIVITIES

Grant proposal reviewer for the German Research Foundation (DFG) and the National Science Center, Poland

Peer review of scientific papers for various journals, including Anal. PDE, Proc. London Math. Soc, J. Funct. Anal., Trans. Amer. Math. Soc., Int. Math. Res. Not IMRN, J. Differential Equations, J. Geom. Anal., Math. Z., Potential Anal., Israel J. Math., Nonlinear Anal. Real World Appl.

MENTORSHIP OF POSTDOCTORAL FELLOWS

Stefanos Lappas (Charles University) *2024 – 2025*

Georgios Dosidis (Charles University) *2021 - 2023*

MASTER THESES SUPERVISION

Anna Musilová (Charles University) *2024 – present*

Alexandra Havelková (Charles University) *2024 – present*

BACHELOR THESES SUPERVISION

Anna Musilová (Charles University) *2022 – 2023*

Radan Vincenec (Charles University) *2020 – 2022*

TEACHING EXPERIENCE

Courses taught at Charles University: Advanced Differentiation and Integration 1, Introduction to Interpolation Theory 2, Selected Topics in Harmonic Analysis 1, Calculus 1 - 3 *2020 – present*

Courses taught at University of Missouri, USA: Applied Analysis, Differential Equations, Calculus III *2016 – 2019*