

# Curriculum Vitae

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Denka Nikolova Kutzarova

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## Education / Professional Development

- 2009 Doctor of Mathematical Sciences, Bulgarian Academy of Sciences.
- 1983 Ph.D. in Mathematics, University of Sofia, Bulgaria, Thesis: “Uniform convexity and differentiability in every direction of the norm in Banach lattices”, Thesis Advisor: S. L. Troyanski
- 1979 M.Sc. in Mathematical Modeling, University of Sofia, Bulgaria.
- 1978 B.Sc. majoring in Mathematics, University of Sofia, Bulgaria.

## Employment

- 2017–present Professor, Department of Mathematics, University of Illinois at Urbana-Champaign.
  - 2012–17 Research Associate Professor, Department of Mathematics, University of Illinois at Urbana-Champaign.
  - 2005–2012 Lecturer, Department of Mathematics, University of Illinois at Urbana-Champaign.
  - 2001–2005 Visiting Associate Professor, Department of Mathematics, University of Illinois at Urbana-Champaign.
  - 1998–2001 Visiting Associate Professor, University of South Carolina at Columbia.
  - 1997–1998 Visiting Distinguished Professor at Miami University, Ohio.
  - Fall 1993 Visiting Associate Professor at University of Missouri-Columbia,
  - Spring 1990 Visiting Assistant Professor at University of Missouri-Columbia.
- 2014–present Professor, Institute of Mathematics and Informatics, Bulgarian Academy of Sciences.
  - 1996–2014 Senior Research Fellow, Second Degree (Associate Professor), Institute of Mathematics and Informatics, Bulgarian Academy of Sciences.
  - 1984–1995 Research Fellow (Assistant Professor), Institute of Mathematics and Informatics, Bulgarian Academy of Sciences.
  - 1979–1983 Teaching Assistant at University of Sofia, Bulgaria.

## Invited visits (1 week or longer, less than 1 semester, excludes conferences/workshops)

- 2019 March–June. Invited visitor for the programme “Approximation, sampling and compression in data science”, Isaac Newton Institute, Cambridge, UK.
- 2009 University of Paris 6, France, 10 days.
- 1994 University of Paris 6, France, 1 week.
- 1994 University of Bordeaux, France, 3 weeks.
- 1992 University of Athens, Greece, 1 month.
- 1991 University of Granada, Granada, Spain, 1 week.
- 1991 Technical University of Valencia, Valencia, Spain, 3 weeks.
- 1991 University of Milan, Italy, 1 week.
- 1991 University of Bologna, Italy, 2 months.
- 1990 University of Newcastle, Australia, 2 months.
- 1987 Academy of Sciences of the Soviet Union, Leningrad, USSR, 1 month.
- 1987 Steklov Mathematical Institute, Moscow, USSR, 2 months.

## Grants

- 2019–2024 Simons Foundation Collaboration Grant No. 636954, \$42,000.

- 2015–2017 “Variational analysis in normed spaces”, research grant DFNI-I02/10 from the Bulgarian National Scientific Fund (member of the group, non-PI).
- 1997–1999 “Geometric Functional Analysis”, research grant of the Bulgarian Ministry of Science and Education. (member of the group, non-PI).
- 1996–1998 “Differential Equations and Nonlinear Analysis”, Research grant of the Bulgarian Ministry of Science and Education. (member of the group, non-PI)
- 1992–1995 “Geometry of Banach Spaces”, Research grant of the Bulgarian Ministry of Science and Education. PI: D. Kutzarova (grant for a group of 6 people)

## Awards

- 1983 First prize for a young scientist from the Institute of Mathematics and Informatics, Bulgarian Academy of Sciences.
- 1979 First prize for a young scientist from the Department of Mathematics and Informatics, University of Sofia.
- 1977 The first place at the Bulgarian National University Students Olympiad in Mathematics.
- 1976 The third place at the Bulgarian National University Students Olympiad in Mathematics.

## Research Interests

Functional analysis (geometry of Banach spaces), approximation theory.

## Citations in papers

Over 500 citations in research papers, excluding citations by a coauthor of the paper.

## ICM Citations

1. Paper [39] is cited in: E. Odell and Th. Schlumprecht, *Distortion and stabilized structure in Banach spaces; new geometric phenomena for Banach and Hilbert spaces*, Proc. Internat. Congress Math. Zürich 1994, vol. 1,2 (1995), pp 954–965.
2. Paper [42] is cited in: N. Tomczak-Jaegerman, *From finite- to infinite- dimensional phenomena in geometric functional analysis on local and asymptotic levels*, Proc. Internat. Congress Math. Berlin 1998, vol. 2, pp 731–742.
3. Paper [39] is cited in B. Bollobás *The work of William Timothy Gowers*, Proc. Internat. Congress Math. Berlin 1998, pp 109–118.
4. Papers [50] and [52] are cited in: V. Temlyakov, *Greedy approximations with regard to bases*, Proc. Internat. Congress Math. Madrid 2006, vol. II, 1479–1504. (self-citation by a coauthor of the papers)

## Work cited in books

1. A.Aksoy and M.Khamsi, *Nonstandard Methods in Fixed Point Theory*, Springer, 1990.
2. R. Deville, G. Godefroy, and V. Zizler, *Smoothness and Renorming in Banach Spaces*, Longman Sci. Text (Pitman, ed.), vol. 64, 1993.
3. P. Habala, P Hájek and V. Zizler, *Introduction to Banach Spaces I,II*, Matfyzpress, Prague, 1996.
4. D. Pallaschke, S. Rolewicz, *Foundations of Mathematical Optimization: Convex Analysis without Linearity*, Kluwer Academic, 1997.
5. M. Fabian, *Differentiability of Convex Functions and Topology: Weak Asplund Spaces*, Wiley, 1997.
6. *On subspaces, asymptotic structure and distortions of Banach spaces, connections with logic*, Analysis and Logic, C. Finet and C. Michaux, eds, London Math. Soc. Lecture Notes Ser. 262. Cambridge University Press, Cambridge, 2002.
7. *Handbook on the Geometry of Banach Spaces*, vol. I and II, eds. W. B. Johnson and J. Lindenstrauss, North-Holland, Amsterdam, 2003.
8. Hajek, P., Montesinos Santalucia, V., Vanderwerff, J., Zizler, V., *Biorthogonal Systems in Banach Spaces*, CMS Books in Mathematics, 2008, XVIII, 342 p., Hardcover, ISBN: 978-0-387-68914-2.

9. V. Temlyakov, *Greedy approximation*, Cambridge Monographs on Applied and Computational Mathematics, 20. Cambridge University Press, Cambridge, 2011.
10. Simon Foucart, Holger Rauhut, *A Mathematical Introduction to Compressive Sensing*, Springer, 2013.

### Invited conference lectures

- March, 2021 . Regional AMS meeting, Brown University (online). Invited talk.
- June, 2019 workshop 'Approximation, sampling, and compression in high dimensional problems', Isaac Newton Institute, Cambridge, UK.
- October, 2018 Kent, Ohio. Conference "Recent Advances in Functional Analysis". Invited main speaker.
- August, 2018 Ubatuba, Brazil. Second Brazilian Workshop in Geometry of Banach Spaces, ICM satellite conference. Invited main speaker.
- Sept. 2016. Warsaw, Poland. *Symposium on Functional Analysis and Optimization. Stefan Rolewicz in memoriam.* talk via Skype.
- July, 2016. Texas A&M University ; *Workshop (concentration week) on Matrix spaces: Analysis, embeddings into Banach spaces, applications*, Invited 50-minute talk.
- June 2016. Sozopol, Bulgaria. *Constructive Function Theory*.
- October 2015. Regional AMS meeting, University of Memphis.
- June 28 – July 3, 2015. Applied Function Analysis, CMO–BIRS, Oaxaca, Mexico.
- March 2015. Regional AMS meeting, Michigan State University.
- December 2014. Conference "125 years of Mathematics and Natural Sciences at Sofia University 'St. Kliment Ohridski' ".
- October 2014. Conference on geometric functional analysis and its applications. Besancon, France. Invited main speaker.
- October 2014 Autumn school on nonlinear geometry of Banach spaces an applications. Metabief, France.
- July 2014 Aleksander Pelczynski Memorial Conference, Bedlewo, Poland.
- July 2014 Mathematics Days in Sofia, Sofia, Bulgaria, invited sectional speaker.
- June 2014 Geometry of Banach Spaces - A conference in honor of Stanimir Troyanski, Albacete, Spain, invited plenary speaker.
- October 2013 Regional AMS meeting, Washington University, St. Louis.
- August 2013 Conference "The mathematical legacy of Ted Odell", Texas A& M University.
- March 2012 *Banach space theory*, Banff International Research Station, Banff, Canada.
- July 2011 **Workshop (concentration week) on Non-Linear Geometry of Banach Spaces, Geometric Group Theory and Differentiability**, Texas A&M University. Invited 50-minute talk.
- July 2011 **Workshop (concentration week) on Greedy Algorithms in Banach spaces and Compressed Sensing**, Texas A&M University. I lectured on a joint paper with Dilworth, Schlumprecht and Wojtaszczyk. I also served as co-organizer of this workshop. Kevin Ford presented a series of three lectures on our joint paper (Duke Math. J. 2011).
- Nov. 2010 Regional AMS meeting, Richmond, Virginia.
- June 2010 Constructive Theory of Functions, Sozopol, Bulgaria.
- Aug. 2008 Workshop on Linear Analysis and Probability, Texas A&M University, College Station, TX.
- 2007 Functional Analysis and Optimization, Bedlewo, Poland (invited plenary lecture).
- 2007 New trends in mathematics and informatics, Sofia, Bulgaria.
- 2006 Frames, Banach Spaces and Signal Processing, concentration week at Texas A&M University.
- 2006 Banach spaces and their applications in Analysis, a conference in honor of Nigel Kalton's 60th birthday, Miami University, Ohio.
- 2006 Regional AMS meeting, Miami, Florida.
- 2005 Conference in honor of H. P. Hosenthal, Texas A&M University.

- 2005 Constructive Function Theory, Varna, Bulgaria.
- 2004 Regional AMS meeting, Athens, Ohio.
- 2002 Constructive Function Theory, Varna, Bulgaria
- 2002 Regional AMS meeting, Athens, Georgia.
- 2001 Trends in Banach Spaces and Operator Theory, University of Memphis, Tennessee.
- 2001 Regional AMS meeting, Columbia, South Carolina.
- 1999 Regional AMS Meeting, Austin, Texas.
- 1998 Summer Workshop on Functional Analysis, College Station, Texas.
- 1998 Conference on Function Spaces, Edwardsville, Illinois.
- 1998 Regional AMS Meeting, Louisville, KY.
- 1997 Regional AMS Meeting, Atlanta, Georgia.
- 1996 Concentration in Infinite Dimensional Convex Geometry, Mathematical Sciences Research Institute, Berkeley, California.
- 1993 Conference on Functional Analysis and Applications, Gargnano, Italy.
- 1993 Regional AMS Meeting, College Station, Texas, USA.
- 1992 Conference on Functional Analysis, Mons, Belgium.
- 1991 Conference on Functional Analysis and Approximation Theory, Maratea, Italy.
- 1990 Annual Meeting of the Australian Math. Soc., Townsville, Australia.
- 1990 Conference on Function Spaces, Edwardsville, Illinois, USA, 1990
- 1989 Conference on Functional Analysis and Approximation Theory, Maratea, Italy.
- 1989 Conference on Function Spaces, Poznan, Poland.

In addition, I gave contributed talks at a number of conferences in Bulgaria, Czechoslovakia, England, Germany, Spain and the USA.

### **Seminar lectures**

- Mar. 2016. University of South Carolina, seminar on functional analysis.
- July 2015. Texas A&M University, College Station, Texas
- March 2014. University of South Carolina, seminar in functional analysis.
- June 2012 . Bulgarian Academy of Sciences, seminar talk.
- April 2012 . University of South Carolina, seminar in functional analysis.
- 2010 . University of South Carolina, seminar in approximation theory.
- 2009 University of Paris 6, France.
- 2008 Texas A&M University, College Station, TX.
- 2005 University of South Carolina, Columbia SC.
- 1997 Kent State University, Kent, Ohio.
- 1997 University of South Carolina, Columbia SC.
- 1996 University of Athens, Athens, Greece, 1996
- 1994 University of Paris 6, the seminar of Maurey-Pisier, Paris, France.
- 1994 University of Bordeaux, Bordeaux, France.
- 1993 University of Missouri-Columbia, Columbia, Missouri.
- 1991 University of Granada, Granada, Spain.
- 1991 University of Murcia, Murcia, Spain.
- 1991 Technical University of Valencia, Valencia, Spain.
- 1991 University of Milan, Milan, Italy.
- 1991 University of Bologna, Bologna, Italy.
- 1990 University of Newcastle, Newcastle, Australia.
- 1990 University of Missouri-Columbia, Columbia, Missouri.

1989 Technical University of Göteborg, Göteborg, Sweden.

1989 University of Linköping, Linköping, Sweden.

1987 Steklov Mathematical Institute, Moscow, USSR.

1987 Moscow State University, Moscow, USSR.

1984 Institute of Mathematics, Polish Academy of Sciences, the seminar of A. Pelczynski, Warsaw.