

**Jan LANG**  
**Department of Mathematics**  
**The Ohio State University**  
**231 West 18th Avenue**  
**Columbus, OH 43210-1174**

lang@math.ohio-state.edu  
phone: (614) 292-9133 ext. 6719  
fax: (614) 292-5817  
www.math.ohio-state.edu/~lang/

### Curriculum vitae

Field of research: Theory of Integral operators, Approximation Theory, Theory of Function spaces and applications to PDE's.

#### Education:

1992-1996: PhD study at the Faculty of Mathematics and Physics at the Charles University, Prague, Czech republic, degree Doctor (PhD equivalent)

1987-1992: Faculty of Mathematics and Physics at the Charles University, Prague, Czech republic, degree Magister (MS equivalent)

#### Professional experience:

since 2007: Associate Prof. at the Department of Mathematics, Ohio State University

2009: Visiting Prof. at the Complutense University of Madrid, Madrid, Spain (6 months)

2003: Visiting Prof. at the Mathematical Institute of the Czech Academy of Sciences, Prague (6 months)

2001-2007: Assistant Prof. at the Department of Mathematics, Ohio State University

2001: Assistant Prof., Department of Math. Anal., Charles University, Prague, Czech Republic

1998-2001: Post Doct. Fellow at the Department of Mathematics, University of Missouri, Columbia, USA

1997-1998: NATO and the Royal Society Postdoctoral Fellowship at the School of Mathematics of the University of Wales, Cardiff, UK, (12 months)

1996: DAAD Scholarship at the Mathematical Institute of the University of Cologne, Cologne, Germany, (3 months)

1995-2000: Research Fellow at the Mathematical Institute of the Czech Academy of Sciences, Prague

1994-1995: External lecturer at the Department of Mathematics, Technical University, Prague

1993-1994: TEMPUS Fellowship at the Complutense University of Madrid, Madrid, Spain (9 months)

#### Awards and prizes:

1995: The Bolzano Prize of the Faculty of Mathematics and Physics at Charles University, Prague

1995: The Prize of the Hlávka Foundation for the best young scientists, Prague

Publishing activity: 1 book, 29 published articles.

List of talks:

- 2010 (December): Conference, New Trends in Spectral Theory and Application, University of Cardiff, Wales, UK (50 min. talk)
- 2010 (September): Miami Fall Conference, Department of Mathematics, Miami University in Oxford, Ohio, USA (50 min. talk)
- 2010 (September): Colloquium talk, Department of Mathematics, University of Texas, El Paso, USA
- 2010 (May): Workshop "Interpolation Theory and Function Spaces", Madrid, Spain (55 min. talk)
- 2010 (April): AMS Sectional Meeting, Albuquerque, NM, April 17-18
- 2010 (February): Mathematical department, The Ohio State University, Columbus Real and Complex Analysis Seminar (seminar talk, 45 min)
- 2009 (July): Department of Mathematics, University of Sussex, Brighton, UK (seminar 45 min)
- 2009 (May): Meeting "Three days on Interpolation, Functions Spaces and Spectral Theory", Madrid, Spain (45min)
- 2009 (March): Departamento de Analisis Matematico, Universidad Complutense de Madrid, Spain, Series of 7 lectures (Curso de doctorado) (7x 55min)
- 2009 (January): Departamento de Analisis Matematico, Universidad Complutense de Madrid, Madrid, Spain Toledo, Spain (Colloquium talk 55 min)
- 2008 (October): Mathematical department, The Ohio State University, Columbus Real and Complex Analysis Seminar (seminar talk, 45 min)
- 2008 (August): International Workshop on Interpolation Theory, Function Spaces and Related Topics, Toledo, Spain (Organize by Universidad de Complutense de Madrid) (Main talk, 45 min)
- 2007 (June): Isaac Newton Institute at the University of Cambridge, Cambridge, UK, (seminar talks)
- 2007 (February): Isaac Newton Institute at the University of Cambridge, Cambridge, UK (short communication)
- 2006 (November): Real and Complex Analysis Seminar at Math. Dept. of the Ohio State University, Columbus, USA
- 2006 (April): Mini-Conference on Approximation Theory at Math. Dep. of the Ohio State University, Columbus, USA
- 2005 (November): Colloquium talk, Department of Mathematics, University of Texas, El Paso, USA
- 2005 (July): EPSRC Meeting: Differential and Integral operators in  $L^p$  space, Gregynog, Wales, UK
- 2005 (July): Seminar talk at University of Sussex, Brighton, UK
- 2004 (June): Fourth World Congress of Nonlinear Analysis (WCNA-2004), Orlando, Florida
- 2003 (November): Centrum of applied math., Faculty of Applied Sciences, University of West Bohemia,

Pilsen, Czech republic

2003 (November): The Prague seminar on function space (series of talks), Mathematical Institute of the Czech academy of Sci., Prague, Czech Republic

2003 (October): Analysis seminar, Department of Mathematics, Florida International University, Miami, Florida

2003 (September): Colloquium talk, Department of Mathematics, University of Alabama-Birmingham, Alabama

2003 (September): Seminar in problems of modern analysis, Department of Mathematics, Technion - Israel Institute of Technology, Haifa, Israel

2003 (September): Special Guest Lecture, The Weizmann Institute of Science Faculty of Mathematics and Computer Science, Rehovot, Israel

2003 (July): Colloquium talk, Mathematical Institute, University of Cologne, Cologne, Germany

2003 (July): Analysis seminar workshop, School of Mathematics, University of Wales-Cardiff, Wales, UK

2002 (November): AMS Sectional Meeting, Orlando, 2002, (November 9-10 2002)

2002 (November-December): The Ohio State University, Columbus, Unofficial Spectral theory seminars (series of talks)

2002 (November): Real and Complex Analysis Seminar at Math. Dep. Of OSU (Columbus)

2002 (July): EPSRC Workshop, Computation and Analytic Problems in Spectral Theory, Gregynog, Wales, UK (July 21-26 2002)

2002 (July): Analysis Seminar at the School of Mathematics, University of Sussex, Brighton, UK

2002 (May): Real and Complex Analysis Seminar at Math. Dep. Of OSU (Columbus)

2002 (May): Harmonic Analysis/Partial Differential Equations Conference at the University of Missouri-Columbia, (May 8-11 2002)

2002 (February): Real and Complex Analysis Seminar at Math. Dep. Of OSU (Columbus)

2001 (May): Annual Meeting of Italian Harmonic Anal. (invited main talk), Neaple, Italy

2001 (March): University of Kansas, Lawrence, AMS meeting, USA

2000 (November): University of Alabama, Birmingham, AMS meeting, USA

2000 (October): Department of Mathematics, University of Texas, USA

2000 (June): School of Mathematics, University of Wales, Cardiff, UK

1999 (June): International Conference on Function Spaces, Differential Operators and Nonlinear Analysis, Pudasjarvi Finland

1999 (May): Department of Mathematics, Brock University, Canada

1999 (March): International Conference on Differential Equations and Mathematical Physics, UAB, Birmingham, USA

1998 (December): Department of Mathematics, University of Missouri-Columbia, , USA

1998 (October): Department of Mathematics, UAB, Birmingham, USA

1998 (July): School of Mathematics, University of Wales, Cardiff, UK

1998 (July): Dipartimento di Matematica e Applicazioni, Università di Napoli

1997 (October): Workshop Differential Equations, Spectral Theory, Function Spaces, Friedrich-Schiller-Universität, Jena, Germany

1996 (December): School of Mathematics, University of Wales, Cardiff, UK

1996 (May): University of Cologne, Germany

1995 (May): Conference on Function Spaces, Linzmühle, Germany

1994 (December): Friedrich-Schiller-Universität, Jena, Germany

1994 (February): University of Málaga, Spain

1994 (February): University of Complutense, Madrid, Spain

1992 (December): Friedrich-Schiller-Universität, Jena, Germany

## List of Publications

### Books

- [B1] J.Lang and D.E.Edmunds, *Eigenvalues, Embeddings and Generalised Trigonometric Functions*, Lecture Notes in Mathematics 2016, Springer, (2011), pp. 220.

### Papers

- [1] J. Lang and A. Nekvinda, *Trace of weighted Sobolev spaces in a singular case*, Czechoslovak Math. Journal **45** (1995), 639–657.
- [2] B. Kawohl and J. Lang, *Are some optimal shape problems convex ?*, Journal of Convex Analysis **4** (1997), No. 2, 1–9.
- [3] M. Krbeč and J. Lang, *Imbeddings between weighted Orlicz–Lorentz spaces*, Georgian Math. J. **4** (1997), 117–128.
- [4] J. Lang and A. Nekvinda, *A difference between the continuous and the absolutely continuous norms in Banach function spaces*, Czechoslovak Math. Journal **47** (122), (1997), 221–232.
- [5] J. Lang and L. Pick, *The Hardy operator and the gap between  $L^\infty$  and BMO*, J. London Math. Soc. (2) **57** (1998), 196–208.
- [6] D.E. Edmunds, J. Lang and A. Nekvinda, *On  $L^{p(x)}$  norms*, Proc. Roy. Soc. London Ser. A **455** (no.1982), (1999), 219–225.
- [7] W.D. Evans, D.J. Harris and J. Lang, *Two-sided estimates for the approximation numbers of Hardy-type operators in  $L^\infty$  and  $L^1$* , Studia Math. **130** (1998), 171–192.
- [8] A. Gogatishvili and J. Lang, *The generalized Hardy operator with kernel and variable integral limits in Banach function spaces*, J. of Inequal. and Appl. **4** (1999), 1–16.
- [9] D.J. Harris and J. Lang, *Approximation numbers of Hardy-type operators on trees*, Function spaces, differential operators and nonlinear analysis (Pudasjrvi, 1999), 113–124.
- [10] W.D. Evans, D.J. Harris and J. Lang, *The approximation numbers of Hardy-type operators on trees*, J. London Math. Soc. (3) **83** (2001), no. 2, 390–418.
- [11] J. Lang, A. Nekvinda and J. Rákosník, *Continuous norm and absolutely continuous norm in Banach function spaces are not the same*, Real Anal. Exchange **26** (2000/01) no.1, 345–364.
- [12] D.E. Edmunds, R. Kerman and J. Lang, *Remainder estimates for the approximation numbers of weighted Hardy operators acting on  $L^2$* , J. Anal. Math. **85** (2001), 225–243.
- [13] D.E. Edmunds and J. Lang, *Behaviour of the approximation numbers of a Sobolev embedding in the one-dimensional case.*, J. Funct. Anal. **206** (2004), 149–166.
- [14] J. Lang, *Improved Estimates for the Approximation Numbers of Hardy-Type Operator.*, J. Approx. Theory **121** (2003), no.1, 61–70.
- [15] J. Lang, A. Nekvinda and O. Mendez, *Asymptotic behavior of the approximation numbers of the Hardy-type operator from  $L^p$  into  $L^q$  (case  $1 < p \leq q \leq 2$  or  $2 \leq p \leq q < \infty$ )*, Journal of Inequalities in Pure

and Applied Mathematics **5** (2004), no. 1, Article 18.

- [16] J. Lang, *Estimates for  $n$ -widths of the Hardy-type operators*, J. Approx. Theory **140** (2006), 141–146.
- [17] J. Lang and O. Mendez, *Potential Techniques and Regularity of Boundary Value Problems in Exterior Non-Smooth Domains*, Potential Analysis **24** (2006), no. 4, 385–406.
- [18] D.E. Edmunds and J. Lang, *Approximation numbers and Kolmogorov widths of Hardy-type operators in a non-homogeneous case*, Mathematische Nachrichten **279** (2006), no. 7, 727–742.
- [19] D.E. Edmunds and J. Lang, *Operators of Hardy type*, Journal of Computational and Applied Mathematics, **208** (2007), 20–28.
- [20] D.E. Edmunds and J. Lang, *Bernstein widths of Hardy-type operators in a non-homogeneous case*, Journal of Mathematical Analysis and Applications **325** (2007), no. 2, 1060–1070.
- [21] B.M. Brown, J. Lang and R.T. Lewis, *Preface [Special issue: 65th birthday of Prof. Desmond Evans], Operators of Hardy type*, Journal of Computational and Applied Mathematics, **208** (2007).
- [22] D.E. Edmunds and J. Lang, *Asymptotics for Eigenvalues of a Non-Linear Integral System*, Bollettion U.M.I, Series IX, **I**, No. 1, (2008), 105–121.
- [23] J. Lang and V. Maz'ya, *Essential norms and localization moduli of Sobolev embeddings for general domains.*, J. Lond. Math. Soc. (2) **78** (2008), no. 2, 373–391.
- [24] D.E. Edmunds, J. Lang and A. Nekvinda, *Some  $s$ -numbers of an integral operator of Hardy type on  $L^{p(\cdot)}$  spaces*, J. Funct. Anal. **257** (2009), no. 1, 219–242.
- [25] D.E. Edmunds and J. Lang, *Generalizing trigonometric functions from different points of view*, Progresses in Mathematics, Physics and Astronomy (Pokroky MFA, in Czech), **4**, 2009.
- [26] D.E. Edmunds and J. Lang, *The  $j$ -eigenfunctions and  $s$ -numbers.*, Math. Nachr. **283** (2010), no. 3, 463–477.
- [27] P. Gurka and J. Lang, *Double-exponential embeddings of logarithmic spaces.*, Math. Nachr., (accepted on 1/2011).
- [28] D.E. Edmunds and J. Lang, *Coincidence of strict  $s$ -numbers of weighted Hardy operators*, Journal of Mathematical Analysis and Applications, (accepted on 3/2011).
- [29] D.E. Edmunds and J. Lang, *Coincidence and calculation of some strict  $s$ -numbers*, Journal for Analysis and its Applications, (accepted on 4/2011).

### Preprints

- [P1] D. E. Edmunds, P. Gurka and J. Lang, *Properties of generalized trigonometric functions.*
- [P2] J. Lang and O. Mendez, *Modular eigenvalues of the Dirichlet  $p(\cdot)$ -Laplacian and their stability.*
- [P3] J. Lang, A. Nekvinda and L. Pick, *Boundedness and compactness of integral operators with general kernels from a weighted Banach function space into  $L_\infty$* , preprint OSU **02-14**.

Professional Services:

- Co-Editor (of a special issue) of Journal of Computational and Applied Mathematics (2005, 2006)
- Referee for Journal of Approximation Theory, (2011 x 1)
- Referee for Functional Analysis and Its Applications, (2010 x 1, 2011 x 1)
- Referee for Forum Mathematicum (2010 x 1)
- Referee for Revista Matemática Complutense (2009 x 1)
- Referee for Journal of Mathematical Analysis and Applications (2009 x 1)
- Referee for Computers and Mathematics with Applications (2009 x 1)
- Referee for Linear Algebra and its Applications (2008 x 1)
- Referee for Integral Equations and Operator Theory, (2006 x 1)
- Referee for Mathematische Nachrichten, (2005 x 1)
- Referee for Acta Mathematica Universitatis Comenianae, (2005 x 1)
- Referee for proceedings of conference "Functions Spaces, Differential operators, Nonlinear Analysis 2004"
- Referee for Journal of Mathematical Inequalities and Applications. (2004 x 1, 2003 x 1)
- Referee for International Journal of Mathematics and Mathematical Sciences. (2003 x 1)
- Referee for Quarterly Journal of Mathematics, (The Queen's College, Oxford) (2003 x 1)
- Referee for Czechoslovak Mathematical Journal, (2003 x 1)
- Reviewer for American Mathematical Society - Mathematical Reviews. (x 21)
- Reviewer of proposals for U.S. Civilian Research and Development Foundation (1 x 2003, 1 x 2005, 1 x 2009)
- Reviewer of proposals for Civilian Research and Development Foundation (CRDF) (1 x 2007)
- Co-organizer of the conference "New Trends in Spectral Theory and Applications", December 2010, Cardiff, Wales, UK
- Member of the organizing committee of the "Nonlinear Analysis, Function Spaces and Applications Vol. 8" (NAFSA8), Prague, Czech Republic, from May 30 to June 6, 2006.
- Co-organizer of Special section on Structure of Function Spaces and Applications at AMS meeting in Miami, Florida, April 2006
- Co-organizer with prof. Malcolm Brown (University of Wales) and prof. Roger Lewis (University of Alabama) of Meeting "Differential and Integral operators in  $L^p$  space", Gregynog, Wales, UK, June 2005
- Member of the organizing committee of the Spring School "Nonlinear Analysis, Function Spaces and Applications Vol. 7" (NAFSA7), Prague, Czech Republic, 2002.

Administrative Services:

Department committees:

- Member of the Undergraduate committee (2007/8)
- Member of the Text-Book search committee for Math 150 (2005-6)
- Member of the Math. search committee 2004/5
- Member of the Text-Book search committee for Math 151-3 (2011-12)

College committees:

- Member of the Library committee (2002-6, 2009-11),
- Chair of the Library committee (2005-6, 2010-11)
- Member of the Joint Library committee (OSUM and MTC) (2005)
- Member of the Elections committee (2002-6)
- Member and co-organization of ad-hoc committee of regional campuses on Journals access (2005)
- Member of the Chem. Search committee (2005/6, 2007/8)
- Member of the Professional Development committee (2005-6, 2010-11)
- Member of the budget committee (2005-6)
- Member of the Academic Affairs committee (2006-8)
- Member of the Academic Excellence Awards committee (2006-11)
- Chair of the Academic Excellence Awards committee (2008-9)
- Member of the Scheduling committee (2009-11)
- Member of the Faculty Evaluation Advisory committee (2010-11)
- Member of the Information Technology Strategic Planning Committee (2007-8)
- Serving at the Committee on Academic Misconduct (2006)