

1 Biographical Sketch

Name: Uwe Einmahl
Date of birth: May 12, 1959
Place of birth: Köln, Germany
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Education:

February 1983 Diploma in mathematics, Universität Köln.
February 1985 Ph. D. (mathematics), Universität Köln.
December 1989 Habilitation (mathematics), Universität Köln.

Employment:

12/1983 – 08/1988 Assistant, Department of Mathematics, Universität Köln.
09/1988 – 06/1989 Visiting Assistant Professor, Department of Probability & Statistics, Michigan State University, East Lansing, USA.
07/1989 – 06/1996 Associate Professor, Department of Mathematics, Indiana University, Bloomington, USA.
09/1990 – 08/1991 Associate Professor, Department of Statistics, University of Illinois, Champaign, USA.
(on leave from Indiana University)
07/1996 – 06/1998 Professor, Department of Mathematics, Indiana University, Bloomington, USA.
10/1996 – 05/2000 Associate Professor
06/2000 – Professor, Department of Mathematics, Vrije Universiteit Brussel, Belgium

2 Research

Probability Theory

Mathematical Statistics

Research Topics

- Strong approximations and invariance principles
- General limit theorems
(Law of the iterated logarithm in \mathbb{R} and in Banach spaces, Darling-Erdős results, universal results on increments)
- Large deviation and moderate deviation probabilities for sums of independent random vectors
- (Local) empirical processes
- Non-parametric statistics (estimation of densities and regression functions)

Research stays (≥ 2 weeks)

- Visiting Researcher: six weeks in August/September 1986:
Department of Mathematics and Statistics, Carleton University, Ottawa, Canada.
- Visiting Researcher: six weeks in April/May 1988:
Department of Mathematical Sciences, University of Delaware, Newark.
- Visiting Researcher: two weeks in December 1990, University of Paris VI, France.
- Visiting Researcher: February 1994
Sonderforschungsbereich 343, Universität Bielefeld, Germany.
- Professeur invité: March 1994, University of Paris VI, France.
- Visiting researcher, six weeks in April/ May 1994
University of Wisconsin, Madison.
- Visiting Researcher, two weeks in June 1995:
Sonderforschungsbereich 343, Universität Bielefeld.
- RiP Research Fellow, four weeks in May/June 1996:
Mathematisches Forschungsinstitut Oberwolfach.
- Professeur invité, 2 weeks in July 2002:
Université de Rennes, France.
- Visiting Researcher, 2 weeks in March/ April 2005, April 2006 and April 2007:
University of Delaware, Newark.
- Visiting Researcher, 2 weeks in May 2007:
Hongkong University of Science and Technology

3 Professional Service and Memberships

Associate Editor

- Journal of Theoretical Probability, March 2006–
- Bernoulli, May 2007–
- Statistics & Probability Letters, December 2008–

Memberships

- Belgian Statistical Society
 - member since 1997
 - council (2004–2006; 2008–2010)
- Institute of Mathematical Statistics
 - member since 1988
 - **Fellow**, May 2000
 - Committee on Fellows (10/2005–09/2008) **chairman**: 10/2007–09/2008
 - Ad Hoc Committee on Voting Procedures (2008)
 - Committee to select editors (10/2008–09/2011) **chairman**: 10/2010-09/2011

4 Publications

- Strong invariance principles for partial sums of independent random vectors. *Ann. Probab.* **15**, 1419–1440 (1987).
- A useful estimate in the multidimensional invariance principle. *Probab. Th. Rel. Fields* **76**, 81–101 (1987).
- Strong approximations for partial sums of i.i.d. B-valued r.v.'s in the domain of attraction of a Gaussian law. *Probab. Th. Rel. Fields* **77**, 65–85 (1988).
- Extensions of results of Komlós, Major and Tusnády to the multivariate case. *J. Multivar. Analysis* **28**, 20–68 (1989).
- Stability results and strong invariance principles for partial sums of Banach space valued random variables. *Ann. Probab.* **17**, 332–352 (1989).
- The Darling-Erdős theorem for sums of i.i.d. random variables. *Probab. Th. Rel. Fields* **82**, 241–257 (1989).
- A note on the law of the iterated logarithm in Hilbert space. *Probab. Th. Rel. Fields* **82**, 213–223 (1989).
- Darling–Erdős theorems for martingales (with D. Mason). *J. Theor. Prob.* **2**, 437–460 (1989).

- Some results on the almost sure behavior of martingales (with D. Mason) [Limit Theorems in Probability and Statistics, 1989] *Colloquia Math. Soc. J. Bolyai* **57** 185–195. North–Holland, Amsterdam (1990).
- On the almost sure behavior of sums of iid random variables in Hilbert space. *Ann. Probab.* **19**, 1227–1263 (1991).
- Approximations to permutation and exchangeable processes (with D. Mason). *J. Theor. Prob.* **5**, 101–126 (1992).
- Exact convergence rates for the bounded law of the iterated logarithm in Hilbert space. *Probab. Th. Rel. Fields* **92**, 177–194 (1992).
- On the other law of the iterated logarithm. *Probab. Th. Rel. Fields* **96**, 97–106 (1993).
- Toward a general law of the iterated logarithm in Banach space. *Ann. Probab.* **21**, 2012–2045 (1993).
- Rates of clustering in Strassen’s LIL for partial sum processes (with D. Mason). *Probab. Th. Rel. Fields* **97**, 479–487 (1993).
- A universal Chung-type law of the iterated logarithm (with D. Mason). *Ann. Probab.* **22**, 1803–1825 (1994).
- On the cluster set problem for the generalized law of the iterated logarithm in Euclidean space. *Ann. Probab.* **23**, 817–851 (1995).
- Clustering behavior of finite variance partial sum processes (with V. Goodman). *Probab. Th. Rel. Fields* **102**, 547–565 (1995).
- Some universal results on the behavior of the increments of partial sums (with D. Mason). *Ann. Probab.* **24**, 1388–1407 (1996).
- Dominating points and large deviations for random vectors (with J. Kuelbs). *Probab. Th. Rel. Fields* **105**, 529–543 (1996).
- Gaussian approximation of local empirical processes indexed by functions (with D. Mason). *Probab. Th. Rel. Fields* **107**, 283–311 (1997).
- On the smallest maximal increment of partial sums of i.i.d. random variables (with D. Mason). *Probab. Th. Rel. Fields* **108**, 67–86 (1997).
- Strong approximations to the local empirical process (with D. Mason). [High Dimensional Probability, Oberwolfach, 1996] *Progress in Probability* **43**, 75–92. Birkhäuser, Boston (1998).
- An empirical process approach to the uniform consistency of kernel type function estimators (with D. Mason). *J. Theor. Probab.* **13**, 1–37 (2000).
- Asymptotic independence of local empirical processes indexed by functions (with P. Deheuvels and D. Mason). [High Dimensional Probability 2, Seattle, 1999] *Progress in Probability* **47**, 183–205. Birkhäuser, Boston (2000).

- A general compact law of the iterated logarithm in Banach spaces (with J. Kuelbs). [High Dimensional Probability 2, Seattle, 1999] *Progress in Probability* **47**, 261–278. Birkhäuser, Boston (2000).
- Cluster sets for a generalized law of the iterated logarithm in Banach space (with J. Kuelbs). *Ann. Probab.* **29**, 1451–1475 (2001).
- Moderate Deviation Probabilities for Open Convex Sets: Non-logarithmic Behavior (with J. Kuelbs). *Ann. Probab.* **32**, 1316–1355 (2004).
- Uniform in Bandwidth Consistency of Kernel-Type Function estimators (with D. Mason). *Ann. Stat.* **33**, 1380–1403 (2005).
- Some results on two-sided LIL behavior (with D. Li). *Ann. Probab.* **33**, 1601–1624 (2005).
- Uniform in bandwidth consistency of local polynomial regression function estimators (with J. Dony and D. Mason). *Austrian J. Stat.* **35**, 105–120 (2006).
- Weighted uniform consistency of kernel density estimators with general bandwidth sequences (with J. Dony). *Electronic J. Probab.* **11**, 844–859 (2006).
- A generalization of Strassen’s functional LIL. *J. Theor. Prob.* **20**, 901–915 (2007).
- Characterization of LIL behavior in Banach space (with D. Li). *Trans. Am. Math. Soc.* **360**, 6677–6693 (2008).
- A new strong invariance principle for sums of independent random vectors. *Zap. Nauchn. Sem. S.- Peterburg. Otdel. Mat. Inst. Steklov (POMI)* **364**, 5–31 (2009).
- Uniform in bandwidth consistency of kernel regression estimators at a fixed point (with J. Dony). *IMS Collections 5* [Highdimensional Probability V: The Luminy volume] 308–325 (2009).

4.2 Lecture Notes

- A refinement of the KMT-inequality for partial sum strong approximation. *Technical Report Series of the Laboratory for Research in Statistics and Probability of the Université d’ Ottawa - Carleton University* **No. 88** (113 pp.) Ottawa, Canada, September 1986.

5 Conferences

5.1 Invited conference talks

March 10, 1987	Mathematische Stochastik, Oberwolfach.
June 18, 1987	NRW-Kolloquium Statistik, Universität Siegen.
June 27, 1988	Probability in Banach space 7, Oberwolfach.
March 13, 1989	Mathematische Stochastik, Oberwolfach.
March 16, 1990	Special Session on Harmonic Analysis and Probability 855th AMS Meeting, Kansas State University Manhattan, Kansas.
July 9, 1991	Probability in Banach space 8, Brunswick, Maine.
April 12, 1992	Special Session on Stochastic Processes 874th AMS Meeting, Lehigh University Bethlehem, Pennsylvania.
March 11, 1993	Mathematische Stochastik, Oberwolfach.
March 19, 1993	2nd International IMS Symposium on Probability and its Applications, Indiana University, Bloomington.
August 18, 1993	Probability in Banach space 9, Sandbjerg, Denmark.
March 25, 1996	Freiberger Stochastikstage, TU Freiberg, Germany.
August 14, 1996	Highdimensional Probability, Oberwolfach.
August 30, 1996	4th International Meeting of the Bernoulli Society, Wien.
October 19, 1996	18th Midwestern Probability Colloquium Northwestern University, Evanston, Illinois.
May 23, 1997	Probability Day, Katholieke Universiteit Leuven, Belgium.
October 21, 1997	Nonparametric Functional Estimation Université de Montréal, Canada.
July 13, 1998	Workshop "Random Walks", Paul Erdős center, Budapest.
September 3, 1998	Empirical Processes in Non- and Semiparametric Statistics, Weierstrass Institut, Berlin.
July 21–27, 1999	Probability Intern Program, 4 talks University of Wisconsin, Madison
August 2, 1999	Highdimensional Probability 2, opening lecture University of Washington, Seattle.
March 31, 2000	Colloquium on limit theorems, Université de Lille, France.
June 19, 2002	Stochastic Inequalities, Universitat Autònoma Barcelona, Spain.
June 26, 2002	Highdimensional Probability 3, Sandbjerg, Denmark.
March 24, 2004	2nd International Workshop on Applied Probability University of Piraeus, Greece.
April 4, 2005	Special Session on Highdimensional Probability 1005th AMS Meeting, University of Delaware, Newark.
May 12, 2005	Franqui foundation workshop, Université Libre de Bruxelles, Belgium.

- June 14, 2005 Invited Paper Session on Limit Theorems
33rd Annual Meeting of the Canadian Society of Statistics
Saskatoon, Saskatchewan.
- May 29, 2006 Invited Paper Session on
Limit Theorems with Applications to Statistics
34th Annual Meeting of the Canadian Society of Statistics
London, Ontario.
- June 15, 2007 Conference honoring the 60th birthday
of Professor Sándor Csörgő, Szeged, Hungary.
- June 20, 2007 International Conference on Empirical Processes
and Asymptotic Statistics, Rennes, France.
- May 29, 2008 Highdimensional Probability 5, Luminy, France.
- July 10, 2008 4th International Workshop on Applied Probability
Université de Compiègne, France.
- October 16, 2008 16th Annual Meeting of the Belgian Statistical Society.
Namur, Belgium.
- June 10, 2009 Advances in Stochastic Inequalities and their Applications
Banff International Research Station, Canada.

5.2 Contributed conference talks

- July 3, 1989 Limit Theorems in Probability and Statistics, Pécz, Hungary.
- July 15, 1995 Large Deviations, Branching Processes, Markov Chains
University of Wisconsin, Madison.
- March 22, 2002 Magdeburger Stochastiktage, Universität Magdeburg,
Germany.
- June 26, 2006 9th Vilnius Conference on Probability Theory and Mathematical
Statistics, Vilnius, Lithuania.
- March 4, 2008 Aachener Stochastiktage, Universität Aachen, Germany.
- June 28, 2010 10th Vilnius Conference on Probability Theory and Mathematical
Statistics, Vilnius, Lithuania.

6 Teaching experience

- *Michigan State University* (1988–1989)
 - Probability & Statistics (Juniors, Engineering and Sciences)
- *Indiana University* (1989–1996)
 - Finite Mathematics; A Review of Calculus (Freshmen, Sciences)
 - Linear Algebra; Multivariate calculus (Sophomores, Sciences)
 - Probability; Probability & Statistics (Juniors, Sciences)
 - Probability I + II (Seniors, Sciences)
 - Probability & Measure I + II (graduate students in mathematics)
- *University of Illinois* (1990–1991)
 - Probability & Measure I + II (graduate students in statistics)
- *Vrije Universiteit Brussel* (1996–)
 - Introduction to probability and statistics (2nd year math students)
 - Probability theory I; Mathematical Statistics I; Complex analysis
Real analysis; Stochastic Processes (3rd year math students)
 - Probability theory II (4th year math students)
 - *Master theses*
 - Limit theorems under mixing conditions, Johan van Kerckhoven (2002)
 - Exponential inequalities for empirical processes with applications,
Mark van Lokeren (2002)
 - Some recent results on the t-statistic, Julia Dony (2004)
 - Strong approximations under low moment assumptions, Michèle Ampe (2005)
 - Poisson approximations, Ellen Simons (2006)
 - Uniform consistency of kernel density estimators for censored data,
Koen Mahieu (2007).
 - *Ph.D. students*
 - Julia Dony (2004–2008)
Thesis: “Nonparametric regression estimation: An empirical process approach to the uniform in bandwidth consistency of kernel estimators and conditional U-statistics.”