

MICHAŁ KAROŃSKI

Born 09/05/1946

Education

Professorship in Mathematics	Adam Mickiewicz University,	1996
Habilitation in Mathematics	Adam Mickiewicz University,	1984
Ph.D. in Mathematics	Adam Mickiewicz University,	1974
M.Sc. in Mathematics	Adam Mickiewicz University,	1969

Employment

Primary positions

Adam Mickiewicz University	Sept. 1969 – present
Department Chairman	Jan. 1984 – present
Faculty Dean	Sept. 1993 – Sept. 1999

Visiting positions

Emory University, Atlanta (total of 13 semesters)	Jan. 1992 – present
The Johns Hopkins University, Baltimore	Aug. 1991 – Dec. 1991
Purdue University, West Lafayette	Jan. 1991 – May 1991
Southern Methodist University, Dallas	Jan. 1989 – July 1989
Southern Methodist University, Dallas	Jan. 1985 – June 1986
University of Florida, Gainesville (Postdoctoral Fellow)	Aug. 1975 – Sept. 1976

Visiting research positions

Mittag-Leffler Institute, Stockholm	January and May 2009
The National University of Singapore	June 2006
Isaac Newton Inst. for Math. Sci., Cambridge	August 2002
Com ² Math, Postech, Pohang	July 2001
Microsoft Research, Redmond	September 1999
DIMACS, Bellcore, Morristown	Aug. 1990 and Sept. 1991
Bielefeld Universität, Bielefeld	Sept. 1990 – Oct. 1990
University of Lund, Lund	Sept. 1982 – Dec. 1982
Lomonosov University, Moscow	Feb. 1980 – March 1980

Research interests

Random Discrete Structures, Graph Theory, Applications of Probabilistic and Graph Theoretical Methods to Computer Science

Publications

59. Introduction to Random Graphs, Cambridge University Press, (2015) to appear (with A. Frieze)
58. Properties of stochastic Kronecker graphs, *Journal of Combinatorics*, (2015), to appear (with M. Kang, Ch. Koch and T. Makai)
57. Random intersection graph process, *Internet Mathematics*, DOI:10.1080/15427951.2014.982310 (2014), to appear (with M. Bloznelis)
56. Random intersection graph process, *Algorithms and Models for the Web Graph, Lecture Notes in Computer Science*, 8305 (2013) 93-105, extended abstract (with M. Bloznelis)
55. A new upper bound for the irregularity strength of graphs, *SIAM Journal of Discrete Mathematics*, 25 (2011) 1319–1321. (with M. Kalkowski and F. Pfender).
54. Vertex coloring edge weightings: towards the 1-2-3-Conjecture, *Journal of Combinatorial Theory (B)*, Vol. 100, No. 3 (2010) 347–349, (with M. Kalkowski and F. Pfender).

53. An iterative approach to the irregularity strength of trees, *Discrete Applied Mathematics*, Vol. 158, No. 11 (2010) 1189–1194, (with M. Ferrara, R. Gould, and F. Pfender).
52. Vertex coloring edge weightings with integer weights at most 6, *Rostock. Math. Kolloq.*, 64 (2009) 39–43, (with M. Kalkowski and F. Pfender).
51. The degree of a typical vertex in generalized random intersection graph models, *Discrete Mathematics*, Vol. 30, No. 18 (2006) 2152–2165, (with J. Jaworski and D. Stark).
50. Edge weights and vertex colours, *Journal of Combinatorial Theory (B)*, Vol. 91, No. 2 (2004) 151–157, (with T. Łuczak and A. Thomason).
49. On generalized random railways, *Combinatorics, Probability and Computing*, Vol. 13, No. 1 (2004) 31–35, (with H. Garmó and S. Janson).
48. Existence of a perfect matching in a random $(1 - e^{-1})$ -out bipartite graph, *Journal of Combinatorial Theory (B)*, Vol. 88, No. 1 (2003) 1–16, (with B. Pittel).
47. On graph irregularity strength, *Journal of Graph Theory*, Vol. 41, No. 2 (2002) 120–137, (with R. Gould, A. Frieze and F. Pfender).
46. The phase transition in a random hypergraph, *Journal of Computational and Applied Mathematics*, Vol. 142 (2002) 125–135, (with T. Łuczak).
45. On the distributed complexity of computing maximal matchings, *SIAM J. Discrete Mathematics*, Vol. 15, No. 1 (2001) 41–57, (with M. Hańćkowiak nad A. Panconesi).
44. Distributed $O(\Delta \log n)$ coloring, *Proceedings of the ESA '2001*, Lecture Notes in Computer Science, (2001) 345–355, (with A. Czygrinow and M. Hańćkowiak).
43. On a solution of a randomized three track variant of the Gate Matrix Layout problem, *Discrete Mathematics*, Vol. 236 (2001) 179–189, (with M. Szymkowiak).
42. The polling primitive for computer networks, *Informatica: An International Journal of Computing and Informatics*, 24 (2000) 211–216, (with A. Czygrinow and V.S. Sunderam).
41. Perfect matchings and Hamilton cycles in sums of random trees, *SIAM J. Discrete Mathematics*, Vol. 12, No. 2 (1999) 208–216, (with A. Frieze and L. Thoma).
40. On random intersection graphs: the subgraph problem, *Combinatorics, Probability and Computing*, (1999) 131–159, (with K.B. Singer and E.R. Scheinerman).
39. A faster distributed algorithm for computing maximal matchings, *Proceedings of the ACM Symposium on Principles of Distributed Computing: PODC'99*, (1999) (with M. Hańćkowiak and A. Panconesi).
38. On the distributed complexity of computing maximal matchings, *Proceedings of the SIAM Symp. on Discrete Algorithms: SODA '98*, (1998) 215–225, (with M. Hańćkowiak and A. Panconesi).
37. The number of connected sparsely edged hypergraphs, *Discrete Mathematics*, Vol. 171 (1997) 173–213, (with T. Łuczak).
36. The origins of the theory of random graphs, *Mathematics of Paul Erdős*, R.L. Graham, J. Nešetřil, Eds., Springer Verlag, Vol. 1 (1996) 311–336 (with A. Ruciński).
35. The polling primitive for hypercube networks, *Proc. 7th IEEE Symposium on Parallel and Distributed Processing*, (1995) 138–144, (with A. Czygrinow and V.S. Sunderam).
34. Random hypergraphs, *In: Combinatorics, Paul Erdős is Eighty*, D. Miklós, V.T. Sós, T. Szönyi, Eds., Vol. 2 (1993) 283–293, (with T. Łuczak).
33. Thresholds for Ramsey properties, *SIAM Activity Group on Discrete Mathematics Newsletter*, Vol. 3, No. 4 (1993) 7.
32. On the connectivity of graphs generated by a sum of random mappings, *Journal of Graph Theory*, 17 (1993) 135–150 (with J. Jaworski).
31. Random Graphs, Chapter 6 of *Handbook of Combinatorics* (R.L. Graham, M. Grötschel, L. Lovasz, Eds.), (1995) 351–380.
30. On the entropy of vertex degrees in a random hypertree, *Advances of Graph Theory*, V.R. Kulli, Ed. (1991) 215–226 (with K. Nowicki).
29. Small cliques in random graphs, *Random Structures & Algorithms*, (1990) 403–434 (with A.D. Barbour, S. Janson and A. Ruciński).
28. A central limit theorem for decomposable random variables with applications to random graphs, *Journal of Combinatorial Theory (B)*, (1989) 125–145 (with A.D. Barbour and A. Ruciński).

27. Small subgraphs of k-partite random graphs, *Proc. of the New York Acad. of Sci.*, (1989) 230–240 (with A. Ruciński).
26. Poisson convergence and semi-induced properties of random graphs, *Math. Proc. Cambridge Phil.Soc.*, 101 (1987) 291–300 (with A. Ruciński).
25. Random Graphs, *Encyclopedia of Statistical Sciences*, Vol. 7 (1986) 512–516 (with D.W. Matula).
24. *Balanced Subgraphs of Large Random Graphs*, AMU Press, Poznań, 1984.
23. On 4-cycles in random bipartite tournaments, *Journal of Graph Theory*, Vol. 7 (1983) 183–194 (with B. Bollobás and O. Frank).
22. On the number of strictly balanced subgraphs of a random graph. In: *Graph Theory, Łagów 1981*, Eds.M. Borowiecki, J.W. Kennedy, M.M. Sysło, *Lecture Notes in Mathematics*, Vol. 1018 (1983) 79–83 (with A. Ruciński).
21. Random hypertrees, allocations and partitions, In: *Graphs and other combinatorial topics. Teubner-Texte für Mathematik*, Teubner Publ. Comp. (1983) 159–162.
20. On the number of k-trees in a random graph, *Probability and Mathematical Statistics*, Vol. 2, No. 2 (1982) 197–205.
19. A review of random graphs, *Journal of Graph Theory*, Vol. 6 (1982) 349–389.
18. On the size of a maximal induced tree in a random graph, *Mathematica Slovaca*, 30, No. 2 (1980) 151–153. Addendum and erratum: *Ibidem* 31 (1981) 107–108 (with Z. Palka).
17. Two distances between hypergraphs, *Applicationes Mathematicae*, Vol. XVI, No. 1 (1980) 671–679 (with Z. Palka).
16. Clustering of observations by k-means method, *Alg. Biom. i Stat.*, No. 8 (1979) 133–152 (with H. Chudzik), in Polish.
15. Ruspini’s method of cluster analysis, *Alg. Biom. i Stat.*, No. 6 (1977) 149–162 (with H. Chudzik), in Polish.
14. A dendrite method of cluster analysis, *Alg. Biom. i Stat.*, No. 6 (1977) 135–148 (with J.S. Harabasz), in Polish.
13. Clustering of multivariate normal populations by a simultaneous test procedure, *Alg. Biom. i Stat.*, No. 6 (1977) 128–134 (with T. Caliński), in Polish.
12. On Marczewski-Steinhaus type distance between hypergraphs, *Applicationes Mathematicae*, Vol. XVI, No. 1 (1977) 47–57 (with Z. Palka).
11. A method of clustering of multivariate populations, *II. Colloquium Metod. z Agro-Biometrii*, (1975) 334–353, in Polish.
10. On a definition of cluster and pseudocluster for multivariate normal population, *Bull. of the ISI. Proc. of the 39th Session*, (1973) 590–598.
9. Clustering of multivariate objects on the basis of Euclidean distance, *Alg. Biom. i Stat.*, No. 2 (1973) 117–129 (with T. Caliński), in Polish.
8. Clustering of multivariate normal population on the basis of Mahalanobis distance, *Alg. Biom. i Stat.*, (1973) 105–115 (with T. Caliński), in Polish.
7. Clustering of characters on the basis of correlation coefficient, *Alg. Biom. i Stat.*, No. 2 (1973) 95–103 (with T. Caliński), in Polish.
6. Applications of digital computers in NMR Lanthanide shift analysis, *Journal of Molecular Structure*, 19 (1973) 223–236 (with J. Barciszewski and A.J. Rafalski).
5. Computer evaluation of errors in the calculation of lanthanide - induced distance, *Texas A&M University N-M-R Newsletter*, No. 165 (1972) 6–10 (with J. Barciszewski and J. Rafalski).
4. An application of cluster analysis to psychology, *Przegląd Psychologiczny*, Vol. XV, 2 (1972) 75–84 (with Cz. Matusewicz), in Polish.
3. An applications of biometrical methods to classification of completely arrhythmic rate of the heart, *Listy Biometryczne*, 34–36 (1972) 51-54 (with M. Krzyśko et.al.), in Polish.
2. Frequency display of the arrhythmic rate of the heart by magnetic registration and computer analysis, *Proc. 7th International Congress on Acoustic*, Vol. 1 (1971) 473–476 (with P. Olejniczak et al.).
1. Step by step procedure of clustering of normal populations, *Listy Biometryczne*, 80–83 (1971) 21-30, in Polish.

Co-authors of papers in main areas of research:

Co-Authors: A.D. Barbour (Zurich), B. Bollobás (Cambridge), K.B. Cohen (Florida), A. Czygrinow (Arizona), M. Ferrara (Denver), A.M. Frieze (CMU), H. Garmó (Uppsala), R.J. Gould (Emory), M. Hanćkowiak (AMU), S. Janson (Uppsala), J. Jaworski (AMU), M. Kalkowski (AMU), T. Łuczak (AMU), K. Nowicki (Lund), Z. Palka (AMU), A. Panconesi (Rome), F. Pfender (Denver), B. Pittel (OSU), A. Ruciński (AMU), E.R. Scheinerman (The Johns Hopkins), D. Stark (London), V. S. Sunderam (Emory), M. Szymkowiak (TUP), L. Thoma (Rochester), A. Thomason (Cambridge);

Grants

KBN T00A 003 23 Cryptographic techniques for data security (2004–2005)

KBN 7T11C 032 20 Distributed graph algorithms (2001–2003)

KBN 2 1087 91 01 Discrete structures (1991–1994); extension KBN 2 P03A 023 09 (1995–1998)

NSF international grant INT-940671 U.S.-Polish Research on Probabilistic Combinatorics (1994–1997)

DIMANET-PECO The European Network on Discrete Mathematics: Random Structures (1993–1997)

CPBP 01.02-I.6 Probabilistic methods in discrete mathematics and applications (1988–1990)

CPBP 01.01.-2/7 Random graphs and applications (1984–1990)

Editorial activities

Editor-in-Chief,	Random Structures and Algorithms (1988 – current)
Editorial Board,	SIAM Monographs on Discrete Mathematics (1996 – current)
Editorial Board,	Advances in Computation: Theory and Practice (1997 – current)
Editorial Board,	Discrete Mathematics (1988 – 1991)
Guest Editor,	Annals of Discrete Mathematics Vol. 28 and 33 (Random Graphs'83 and Random Graphs'85)

Thesis Advisor

PhD advisor of: Jerzy Jaworski (full professor AMU), T. Łuczak (full professor, AMU, member of the Polish Academy of Sciences), Andrzej Ruciński (full professor, AMU), J. Szymański (associate professor, AMU), J. Gruszka, M. Dondajewski, M. Szymkowiak (assistant professors, PUT), U. Konieczna (assistant professor, UKW), E. Szymańska, M. Hanćkowiak, M. Kalkowski, K. Krzywdziński, R. Witkowski, W. Wawrzyniak (assistant professors, AMU), M. Anholcer (assistant professor, PUE).

Meetings

Chairman and Chief Organizer: 1st-14th Conference on Random Structures & Algorithms held in Poznań in 1983, 1985, 1987, 1989, 1991, 1993, 1997, 1999, 2001, 2003, 2005, 2009, 2013, in Atlanta in 1995 and 2011 and in Tel Aviv in 2007.

Program Chairman: Special session: "Random Graph Theory" 10-th and 11th International Vilnius Conference on probability and mathematical Statistics, Vilnius, June, 2010 and July, 2014

Co-organizer: Berlin-Poznań combinatorial seminars, since 1995 – present

Program Chairman: Special session: "Random Discrete Structures", European Meeting of Statisticians, Bath, England, 1992.

Program Chairman: Special session on random graphs, Second China– USA Conference in Graph Theory, Combinatorics, Algorithms and Applications, San Francisco, July 1989.

Program Chairman: Special session "Stochastic Graphs", 14th European Meeting of Statisticians, Wrocław, 1981.

Special lecture series

The University of Mississippi, *The Dalrymple Lecture Series: "From Paul Erdős to the Internet"*, November 2009.

Gdańsk University of Technology (Politechnika Gdańska) *Professor Ignacy Adamczewski Lecture Series: "Random structures: from the evolution to the Internet"*, October 2007.

University of Memphis, *Paul Erdős Memorial Lecture Series: "Paul Erdős and random graphs"*, March 2006.

Plenary lectures and special invited talks

- *Random Web Graphs*, Discrete Mathematics Day, TU Graz, June 2012, plenary.
- *Irregularity strength of graphs: an algorithmic approach*, 22th International Meeting on Probabilistic, Combinatorial and Asymptotic Methods in the Analysis of Algorithms (AofA'11), June 2011, plenary.
- *Vertex-coloring edge-weighting*, Optimal Discrete Structures and Algorithms: ODSA2010, Rostock, September 2010, plenary.
- *On 1,2,3-conjecture*, The 23rd Clemson Conference on Discrete Mathematics and Algorithms, November 2008, invited.
- *Random intersection graphs*, 5th Cracow Conference on Graph Theory, "Ustroń'2006", September 2006, plenary.
- *Random intersection graphs*, XXVI European Meeting of Statisticians, Toruń, July 2006, invited.
- *Random intersection graphs*, Workshop on Random Graphs, Institute for Mathematical Sciences, The National University of Singapore, June 2006, invited.
- *Irregular assignments*, Conference on Probabilistic Combinatorics & Algorithms: a Conference in Honor of Joel Spencer's 60th Birthday, DIMACS, New Brunswick, April 2006, invited.
- *Irregular assignments*, Random Graals'2005, Bertinoro, June 2005, invited.
- *Irregular assignments*, Cycles and Colourings 2005, Tatranska Strba, September 2005, plenary.
- *Svante and "Random Structures & Algorithms"*, Svante Janson 50 th Birthday Celebration Conference, Uppsala, May 2005, plenary.
- *Irregular assignments*, CombinaTexas: Combinatorics in the South-Central U.S., College Station, April 2004, plenary.
- *Edge weights and vertex colours*, Geometry Day, Denton, October 2003, plenary.
- *Edge weights and vertex colours*, 2nd Bertinoro Workshop on Randomi(zed) Graphs and Algorithms, Bertinoro, June 2003, invited.
- *On graph irregularity strength*, Fourth Kraków Conference on Graph Theory, Czorsztyn, September 2002, plenary.
- *On graph irregularity strength*, Random Graphs and Structures, Newton Institute, Cambridge, September 2002, invited.
- *Existence of a perfect matching in a random $1 + 1/e$ -out bipartite graph*, Euroworkshop: Randomised Algorithms, Newton Institute, Cambridge, August 2002, invited.
- *Distributed graph edge-coloring algorithm*, Workshop on Randomized and Approximation Algorithms, Dagstuhl, June 2001, invited.
- *Perfect matchings in sums of dependent random mappings*, "Paul Erdős Lecture Series", The University of Memphis, February 2001, invited.
- *Perfect matchings in sums of dependent random mappings*, Finite and Infinite Sets, Budapest, January 2001, invited.
- *Random discrete structures*, Com²Mac Workshop on Combinatorial and Computational Mathematics: Present and Future, Pohang, South Korea, February 2000, plenary.
- *Phase transition in a random hypergraph*, International Conference: Paul Erdős and his Mathematics, Budapest, July 1999, invited.
- *On the distributed complexity of computing maximal matchings* Berliner Algorithmen-tag, Berlin, Germany, July 1999, plenary.
- *Random intersection graphs and VLSI Design*, DIMANET Workshop on Combinatorics, Matrahaza, October 1995, invited.

- *Phase transition in random hypergraphs*, International Combinatorics Colloquium (to celebrate Paul Erdős eightieth birthday), Keszthely, July 1993, invited.
- *Phase transition in random discrete structures*, Eropean Meeting of Statisticians, Bath, September 1992, invited.
- *Probability and Algorithms*, Journees Europeennes, Mathematique – Informatique (Satellite conference of European Mathematical Congress), Paris, July 1992, invited.
- *Future direction of random graphs*, Quo Vadis, Graph Theory? An International Conference on the Future of Graph Theory, Fairbanks, August 1990, plenary.
- *Asymptotic distributions for subgraphs of random graphs* AMS/SIAM Joint Summer Research Conference, Arcata, June 1989, invited.
- *Phase transition in random graphs*, 8th Fishland Conference on Graph Theory and Combinatorics, Wustrow, Sept. 1988, plenary.
- *Limit theorems and random graphs*, Cambridge Combinatorial Conference in honour of Paul Erdős on his 75th birthday, Cambridge, April 1988, invited.
- *Small subgraphs of k -partite random graphs*, Third International Conference on Combinatorial Mathematics, New York, June 1985, invited.

Seminar presentations at universities abroad

Mittag-Leffler Institute, Stockholm, Sweden (2009, 2014)
 ETH, Zurich, Switzerland (2007)
 University of Zurich, Zurich, Switzerland (2007)
 University of Southern Mississippi, Hattiesburg, U.S.A. (2001)
 University of Illinois, Urbana, U.S.A. (2001)
 Uppsala University, Uppsala, Sweden (1998)
 Carnegie Mellon University, Pittsburgh, U.S.A. (1997, 2009)
 University of Paderborn, Paderborn, Germany (1997)
 Humboldt University, Berlin, Germany (1995)
 Georgia Institute of Technology, Atlanta, U.S.A. (1994, 2001)
 George Washington University, Washington, U.S.A. (1993)
 Emory University, Atlanta, U.S.A. (1993,2001,2007,2009)
 University of Georgia, Athens, U.S.A. (1993,1994)
 Purdue University, West Laffayette, U.S.A. (1992)
 Hungarian Academy of Science, Budapest, Hungary (1991)
 City University of New York, U.S.A. (1991)
 Mountain University, Leoben, Austria (1991)
 Fordham University, New York, U.S.A. (1990)
 University of Bielefeld, W. Germany (1990)
 University of Rome, Italy (1990)
 University of l'Acquila, Italy (1990)
 University of Chicago, U.S.A. (1989)
 University of Waterloo, Canada (1989)
 Case Western Reserve University, Cleveland, U.S.A. (1989)
 University of Dortmund, W. Germany (1987)
 University of Frankfurt am Main, W. Germany (1987)
 University of Texas, Dallas (1986)
 The Johns Hopkins University, Baltimore, U.S.A. (1985, 1993, 2003)
 Rutgers University, New Brunswick, U.S.A. (1985)
 Ohio State University, Columbus, U.S.A. (1985)
 Southern Methodist University, Dallas, U.S.A. (1985, 2003)
 Technical University of Vienna, Austria (1984)
 University of Karlsruhe, W. Germany (1984)
 University of Bonn, W. Germany (1984)
 Charles University, Prague, Czechoslovakia (1983)

University of Copenhagen, Denmark (1982)
Lomonosov University, Moscow, USSR (1980, 1984)
University of Lund, Sweden (1979, 1980, 1982, 1987, 1991)
University of Florida, Gainesville, U.S.A. (1975, 1976, 1985)