Curriculum Vitae of Pavel Pudlák

Born 30 May 1952, in Prague, Czechoslovakia

Affiliation and employment

Senior researcher at the Mathematical Institute of the Czech Academy of Sciences, Prague.

Research Interest

Logic (proof theory, proof complexity), theoretical computer science (computational complexity), finite combinatorics.

Education

Charles University, Faculty of Mathematics and Physics, Prague, Czechoslovakia.
Dissertation: Representation of Finite Lattices (in Czech, 1977).

Academic degrees

RNDr (doctor of natural sciences)
DrSc (doctor of sciences)
Professor (full professor, Charles University)

Regular Academic or Research Appointments

1. Mathematical Institute, Czechoslovak Academy of Sciences (now Czech Academy of Sciences), Prague; since 1976. Head of the Department of logic, algebra and theoretical computer science until 2023.
2. Faculty of Mathematics and Physics, Charles University, Prague, part time position 2004-2011.

Visiting Academic or Research Appointments

1. One semester positions in the USA: Vanderbilt University, Nashville, 1978; University of Colorado, Boulder, 1984; University of Illinois at Chicago, 1986; Emory University, Atlanta, 1991; Institute for Advanced Study, Princeton, 2000.
2. Humboldt Fellowship at Dortmund University, Dortmund, Germany, 1992-93 and 1995.
3. Participation on the programs of the Simons Institute for the Theory of Computing, Berkeley, California: *Fine-Grained Complexity and Algorithm Design* 2015, *Lower bounds in computational complexity* 2018, *Mata-Complexity* 2023.

PhD students

former:

Jan Krajíček
Marta Bílková
Pavel Hrubeš
Anna Horská
Erfan Khaniki

currently none

Service to Profession

Editor of the journals: Archive for Mathematical Logic, 1989-94; Information and Computation, 1989-96; Calcolo, 1998-2012; Computational Complexity, since 2004; Mathematical Logic Quarterly, 2005-11

Editor of the ASL book series Perspectives in Logic 2002-2010

Member of program or organizing committees of conferences: STOC, Computational Complexity, Logic Colloquium, CSL, MFCS, CSR and others.

Books and book chapters

J. Mycielski, P. Pudlák, A.S. Stern: A lattice of chapters of mathematics, Memoirs AMS, Vol.84, No.426, 1990, 70 pp.

P. Hájek, P. Pudlák: Metamathematics of first order arithmetic, Springer-Verlag/ASL Perspectives in Logic, 1993, 460 pp.

P. Pudlák: The lengths of proofs, in Handbook of Proof Theory, S.R. Buss ed., Elsevier, 1998, pp.547-637.

P. Pudlák: Logical Foundations of Mathematics and Computational Complexity, a gentle introduction. Springer-Verlag, 2013, 695 pp.

Selected Recent Publications

R. Paturi, P. Pudlák: On the complexity of circuit satisfiability, Proc. of the 2010 ACM STOC, pp. 241-249

M. Koucký, P. Nimbhorkar, P. Pudlák: Pseudorandom Generators for Group Products, Proc. of the 2011 ACM STOC, pp. 263-272.

P. Pudlák, N. Thapen: Alternating minima and maxima, Nash equilibria and Bounded Arithmetic, Annals of Pure and Applied Logic 163 (2012), pp. 604-614.

A. Gál, K.A. Hansen, M. Koucký, P. Pudlák, and E. Viola. Tight bounds on computing error-correcting codes by bounded-depth circuits with arbitrary gates. IEEE Transactions on Information Theory, 59(10), pp. 6611-6627, (preliminary version in: 2012 ACM STOC, pp. 479-494, 2012).

A. Beckmann, P. Pudlák, N. Thapen: Parity games and propositional proofs, ACM Transaction on Computational Logic, Vol 15:2, article 17, 2014.

M. Lauria, P. Pudlák, V. Rodl and N. Thapen: The complexity of proving that a graph is Ramsey. to appear in Combinatorica (preliminary version in ICALP 2013, Lecture Notes in Computer Science Volume 7965, 2013, pp. 684-695.)

D. Gavinsky, P. Pudlák: Partition expanders. Proc. of 31st Symposium on Theoretical Aspects of Computer Science (STACS), LIPIcs, Dagstuhl, Germany, pp. 433-447, 2014.

P. Pudlák: Linear tree codes and the problem of explicit constructions. Linear Algebra and its Applications 490, 2016, pp. 124-144.

P. Hrubeš and P. Pudlák: Random formulas, monotone circuits, and interpolation. Proc. 58th Annual IEEE Symp. on Foundations of Computer Science (FOCS), pp. 121-131, 2017

P. Pudlák: The canonical pairs of bounded depth Frege systems. Annals of Pure and Applied Logic 172, 2021.

P. Pudlák and V. Rodl: Extractors for small zero-fixing sources. Combinatorica 42, pp. 587–616, (2022).

S. Gryaznov, P. Pudlák, N. Talebanfard: Linear Branching Programs and Directional Affine Extractors. Proc. Computational Complexity Conference 2022, Pages 4:1–4:16.

P. Pudlák: Proofs, computational complexity, and games, Proc. of the European Congress of Mathematicians, ECM'24, to appear.

Recent Grants

Centrum excelence - Institut teoretické informatiky (CE-ITI), GAČR P202/12/G061, 2012–2018, coinvestigator.

Feasibility, Logic and Randomness (FEALORA), ERC Advanced Grant 339691, 2014–2018, principal investigator.

Lecture on international congresses

An invited lecture at the International Congress of Mathematicians, Zürich, Switzerland, 1994, (45-minute lecture in Section 1)

An invited lecture on the European Congress of Mathematicians, Seville, Spain, 2024.

Honours and Awards

Prize of the Czechoslovak Academy of Sciences, 1979, (jointly with Jiří Tůma).
Bernard Bolzano Medal of the Czech Academy of Sciences, 2001.
Neuron Award for Contribution to Science of the Neuron Foundation, 2017.
Honorary medal *De scientia et humanitate optime meritis* of the Czech Academy of Sciences, 2022.