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Personal Data

Peter Leupold

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Born: September 1st, 1974, Hof, Germany

Nationality: German



School Education

1980-1984	Grundschule Helmbrechts (grades 1-4)
1984/1985	Hauptschule Helmbrechts (5th grade)
1985-1992	Gymnasium Münchberg (grades 5-11)
1992/1993	Crane High School, Crane, Texas, USA (12th grade)
1993-1995	Gymnasium Münchberg (grades 12-13), Abitur (final grade 1,3)

University Education

1996-2002	Studies in Informatics and Linguistics at Friedrich Schiller University Jena (FSU)
3/2002	Graduation as Diplominformtiker (cum laude) Thesis topic: Potenzen von Sprachen Supervisor: Gerhard Lischke
2002-2006	Participation in the <i>PhD-School in Formal Languages and Applications</i> , Universitat Rovira i Virgili, Tarragona, Spain
11/2006	Defense of the Dissertation (excellent cum laude per unanimat) Topic: Languages Generated by Iterated Idempotencies Supervisors: Juhani Karhumäki (Turku), Victor Mitrana (Tarragona, Bucarest)

Employment/Fellowships

2002	Exchange grant from the Spanish Foreign Ministry (Becas MAE)
2003-2006	PhD grant from the Spanish Ministry of Science and Education (FPU programme)

2007-2009	Postdoctoral fellow at Kyoto Sangyo University with a grant from the Japanese Society for the Promotion of Science (Pre-selection in Germany by Alexander von Humboldt Foundation)
2009-2010	Return Fellow of the Humboldt Foundation at the University of Kassel, Project <i>String-Rewriting in Natural Computing</i>
2010-2012	Beatriu de Pinós Researcher funded by the Generalitat de Catalunya at Rovira i Virgili University, Tarragona
since 1/2013	Scientific Assistant at the University of Leipzig

Aquired Projects

2007-9	<i>Grant-in-Aid for Scientific Research</i> of the Japanese Society for the Promotion of Science (2,400,000 Yen), Project <i>Idempotency Closure of Languages</i> .
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Research Stays

10 / 2002	Two weeks in Hungary (Budapest, Győr, Szombathely)
9 / 2003	Two weeks in Hungary (Budapest, Debrecen, Szombathely)
6-12 / 2004	University of Turku/ Turku Center for Computer Science
9-12 / 2005	Kyoto Sangyo University
6-8 / 2006	University Turku/ Turku Center for Computer Science
3 / 2010	Kyoto Sangyo University
3 / 2011	Kyoto Sangyo University
2 / 2012	Kyoto Sangyo University
7 / 2012	University of Leipzig (one week)

Collaboration in Funded Research Projects

2001-03	Deutsches Zentrum für Luft- und Raumfahrt (DLR), Project Formal Languages (Responsible Researchers: Manfred Kudlek, Sándor Horváth)
2006-08	Japanese Society for the Promotion of Science (JSPS) and Hungarian Academy of Sciences, Joint Project Automata and Formal Languages (Responsible Researchers: Masami Ito, Pál Dömösi)
2007-09	Japanese Society for the Promotion of Science (JSPS) Grant-in-Aid for Scientific Research (2,400,000 Yen), Project Idempotency Closure of Languages, (Responsible Researchers: Masami Ito, Peter Leupold)

Invited Lectures

2002	Eötvös Lorand University Budapest, University Győr, Szombathely College
2003	University Debrecen, Eötvös Lorand University Budapest, Szombathely College
2004	University Jena, University Turku
2005	Kyoto Sangyo University, Shizuoka Institute of Technology, Waseda University Tokyo
2006	University Turku
2007	Shizuoka Institute of Technology
2008	Toho University, Shizuoka Institute of Technology
2009	Toho University, Humboldt Network Congress (Heidelberg)
2010	University of Kassel (Computational Algebra Group), Kyoto Sangyo University, University of Kyushu, Tokyo University (Nanophotonics Group), University of Aizu, University of the Witwatersrand, Johannesburg
2011	Kyoto Sangyo University
2012	Kyoto Sangyo University, University of Leipzig

Refereeing for

Journals

Information Sciences
Theoretical Computer Science
Information and Computation
Discrete Applied Mathematics
Journal of Computer and System Sciences
Journal of Automata, Languages and Combinatorics
International Journal of Computer Mathematics
Frontiers of Computer Science in China
Mathematics Applied in Science and Technology
Publicationes Mathematicae Debrecen
Romanian Journal of Information Science and Technology

Conferences

International Colloquium on Automata, Languages and Programming (ICALP) 2011

Developments in Language Theory (DLT) 2007, 2008, 2009, 2013

Mathematical Foundations of Computer Science (MFCS) 2004

Computer Science in Russia 2013

International Workshop on The Complexity of Simple Programs 2008

International Conference on Implementation and Application of Automata (CIAA) 2009

Languages and Automata, Theory and Applications (LATA) 2009, 2010

Computability in Europe 2010

International Conference on Implementation and Application of Automata 2010

International Conference on Bio-Inspired Models of Network, Information, and Computing Systems 2010

Work in Programme Committees

5th International Workshop on Non-Classical Models of Automata and Applications (NCMA), Umea, 2013.

Conference on Practical Applications of Agents and Multi-Agent Systems (PAAMS), Salamanca, 2011

Special session: Bio-Inspired and Multi-Agents Systems: Applications to Languages

International ICST Conference on Bio-Inspired Models of Network, Information and Computing Systems (BIONETICS), Boston, 2010

Track: Artificial Life and Bio-inspired Robotics

Work in Organizing Committees

Languages and Automata, Theory and Applications (LATA), San Sebastian, 2013.

Languages and Automata, Theory and Applications (LATA), A Coruña, 2013.

Languages and Automata, Theory and Applications (LATA), Tarragona, 2011.

International Work-Conference on Linguistics, Biology and Computer Science: Interplays, Tarragona, 2010

Developments in Language Theory (DLT), Kyoto, 2008

Automata, Formal Languages and Algebraic Systems (AFLAS),
Kyoto, 2008

Work in Doctoral Defense Committees

Alexander Krassovitskiy, University of Tarragona, 2011

Robert Mercas, University of Tarragona, 2010 (substitute member)

Membership

European Association for Theoretical Computer Science (EAT-CS)

Computability in Europe (CiE)

Gesellschaft für Informatik (GI) - Fachgruppe Automaten und Formale Sprachen

Other Activities Worth Being Mentioned

1993 Member of the Texas State Champion Team in Number Sense

1995/1996 One year service in the Luftwaffe,
FlaRakGrp 21, Manching

Aug/Sep 2000 Internship with Cerner Software Corporation, Kansas City, USA

1998-2001 Three years member of the Board of Informatics Students,
one year as speaker

1999-2001 Two years member of the Faculty Council
of the Faculty of Mathematics and Informatics

2000-2002 Two years member of the Student Parliament of the FSU,
three semesters as president

2001/2002 One year speaker of the Conference of Thuringian Students

2001/2002 One year student member of the Board of the
Thüringen State Conference of Universities

1995–now More than 30 marathons and similar races

2007–now Author for the newspapers *La Directa*, *Catalunya* and *Paraules per la Pau* (all in Catalan language)

2008–now Internet administrator for the consumer cooperative *El Gínjol* (Perl, data base)

Hobbies

Running

Triathlon

Mountaineering

Politics

Languages

German, English (fluent)

Catalan, Spanish (good)

Japanese, Latin (basic knowledge)

Teaching Experience

- 2010/2011 Lecture *Stringologie (Stringology)*. Universität Kassel, 4h/week.
- 2009/2010 Lecture *Biochemisch Inspirierte Berechnungen (Biochemically Inspired Computations)*. Universität Kassel, 4h/week.
- 2006 Introductory course *Discrete Mathematics and Logics* for the PhD School *Formal Languages and Applications*, Universitat Rovira i Virgili, Tarragona, 3 days (with A. Alhazov and R. Loos).
- 2005 Introductory course *Discrete Mathematics and Logics* for the PhD School *Formal Languages and Applications*, Universitat Rovira i Virgili, Tarragona, 3 days (with A. Alhazov).

Teaching Training

- 3 2013 Course "Gesprächsführung in kritischen Beratungssituationen" at the Service Center Teaching of the University of Kassel
- 5/6 2010 Course "Teaching with Activating Methods" at the Service Center Teaching of the University of Kassel
- 4/5 2010 Course "Voice and Speech Training for Teaching" at the Service Center Teaching of the University of Kassel

Scientific Publications

Books

- [1] P. LEUPOLD and F. OTTO: *String-Rewriting and Natural Computing*. In preparation.
- [2] P. LEUPOLD: *One-Directional Non-Counting Languages: The Anti-Symmetric Case of Brzozowski's Problem*. VDM Verlag, Saarbrücken, 2009, 116 pages. Based on parts of the doctoral dissertation [48].

Journals

- [3] P. LEUPOLD and F. OTTO: *On McNaughton Families of Languages That Are Specified by Some Variants of Monadic String-Rewriting Systems*. In: *Fundamenta Informaticae* 112, 2011, pp. 219–238.
- [4] M. ITO, P. LEUPOLD, F. MANEA and V. MITRANA: *Bounded Hairpin Completion*. In: *Information and Computation* 209, 2011, pp. 471–485.
- [5] M. CAVALIERE and P. LEUPOLD: *Computing by Observing: Simple Systems and Simple Observers*. In: *Theoretical Computer Science* 412(1-2), 2011, pp. 113–123.
- [6] P. LEUPOLD and B. NAGY: *5' → 3' Watson-Crick Automata With Several Runs*. In: *Fundamenta Informaticae* 104(1-2), 2010, pp. 71–91.
- [7] P. LEUPOLD F. MANEA and R. LOOS: *Complexity Aspects of the Recognition of Context-Free Languages by AHNEPs*. In: *Romanian Journal of Information Science and Technology* 12, 2009, 219–233.
- [8] M. CAVALIERE, N. JONOSKA, and P. LEUPOLD: *DNA splicing: computing by observing*. In: *Natural Computing* 9 (1), 2009, pp. 157–170.
- [9] P. LEUPOLD and V. MITRANA: *Uniformly Bounded Duplication Codes*. In: *RAIRO Informatique Théorique* 41 (4), 2007, pp. 411–424.
- [10] P. LEUPOLD: *Languages Generated by Iterated Idempotencies*. In: *Theoretical Computer Science* 370(1-3), 2007, pp. 170–185.
- [11] M. CAVALIERE and P. LEUPOLD: *Observation of String-Rewriting Systems*. In: *Fundamenta Informaticae* 74(4), 2006, pp. 447–462.
- [12] P. LEUPOLD, C. MARTÍN VIDE and V. MITRANA: *Uniformly Bounded Duplication Languages*. In: *Discrete Applied Mathematics* Vol 146, Iss 3, 2005, pp. 301–310.
- [13] J. CASTELLANOS, P. LEUPOLD, and V. MITRANA: *On the Size Complexity of Hybrid Networks of Evolutionary Processors*. In: *Theoretical Computer Science* 330, 2005, pp. 205–220.
- [14] P. LEUPOLD: *Languages of Partial Words - How to Obtain Them and What Properties They Have*. In: *Grammars*, Vol 7, 2004, pp. 179–192.

- [15] M. CAVALIERE and P. LEUPOLD: *Evolution and Observation — A Non-Standard Way to Generate Formal Languages*. In: Theoretical Computer Science 321, 2004, pp. 233–248.

Refereed Conference Proceedings and Other Volumes

- [16] A. KRASSOVITSKIY and P. LEUPOLD: *Computing by Observing Insertion*. In: Proceedings of Languages, Automata Theory and Applications 2012, Lecture Notes in Computer Science 7183, Springer, Berlin, 2012, pp. 377–388.
- [17] S. FAZEKAS, P. LEUPOLD and K. SHIKISHIMA-TSUJI: *Avoidability of Primitive Palindromes*. In: Automata and Formal Languages, 13th Intl. Conf, Proceedings. College of Nyíregyháza, 2011, pp. 184–196.
- [18] P. LEUPOLD and F. OTTO: *On McNaughton Families of Languages Specified by Certain Variants of Monadic String-Rewriting Systems*. In: Workshop on Non-Classical Models for Automata and Applications - NCMA 2010, Series *books@ocg.at* (263), Austrian Computer Society, Graz 2010, pp. 113–126.
- [19] N. HUNDESHAGEN and P. LEUPOLD: *Transducing by Observing*. In: Workshop on Non-Classical Models for Automata and Applications - NCMA 2010, Series *books@ocg.at* (263), Austrian Computer Society, Graz 2010, pp. 85–98.
- [20] P. LEUPOLD and A. MEDUNA: *Finitely Expandable Deep PDAs*. In: M. Ito, Y. Kobayashi, K. Shoji: Automata, Formal Languages and Algebraic Systems 2008, World Scientific, London, 2010, pp. 113–124.
- [21] P. LEUPOLD: *Primitive Words are Unavoidable for Context-free Languages*. In: Proceedings of Languages, Automata Theory and Applications 2010, Lecture Notes in Computer Science 6031, Springer, Berlin, 2010, pp. 403–413
- [22] M. CAVALIERE and P. LEUPOLD: *Computing by Observing Change*. In: Proceedings of 4th International Workshop on Natural Computing, Springer, Tokyo 2010, pp. 133–140.
- [23] P. LEUPOLD: *Reducing Repetitions*. In: Proceedings of Prague Stringology Days, Prague, 2009, pp. 225–236.
- [24] P. LEUPOLD and B. NAGY: *m-run $5' \rightarrow 3'$ Watson-Crick automata*. In: Workshop on Non-Classical Models for Automata and Applications - NCMA 2009, Series *books@ocg.at* (256), Austrian Computer Society, Graz, 2009, pp. 167–180.
- [25] M. ITO, P. LEUPOLD, and V. MITRANA: *Bounded Hairpin Completion*. In: Proceedings of Languages, Automata Theory and Applications 2009, Lecture Notes in Computer Science 5457, Springer, Berlin, 2009, pp. 434–445.
- [26] P. LEUPOLD and A. MEDUNA: *Finitely Expandable Deep Push-Down Automata*. In: Masami Ito, Yuji Kobayashi and Kunitaka Shoji (eds.): *Automata, Formal Languages and Algebraic Systems*, World Scientific, Singapore, 2009, pp. 31–41.
- [27] P. LEUPOLD: *How to Pop a Deep PDA Matters*. In: Automata and Formal Languages, 12th International Conference AFL, Proceedings, ISBN 978-963-311-367-7, Győr, 2008.

- [28] P. LEUPOLD: *On Regularity Preservation by String-Rewriting Systems*. Proceedings of Languages, Automata Theory and Applications 2008, Lecture Notes in Computer Science 5196, Springer, Berlin, 2008, pp. 345–356.
- [29] P. LEUPOLD: *Duplication Roots*. In: Developments in Language Theory 2007, Lecture Notes in Computer Science 4588, Springer, Berlin, 2007, pp. 290–299.
- [30] M. ITO, P. LEUPOLD, and K. SHIKISHIMA-TSUJI: *Closure of Language Classes under Bounded Duplication*. In: Developments in Language Theory 2006, Lecture Notes in Computer Science 4036, Springer, Berlin, 2006, pp. 238–247.
- [31] M. CAVALIERE, N. JONOSKA, and P. LEUPOLD: *DNA Splicing: Computing by Observing*. In: DNA 11, Lecture Notes in Computer Science 3354, Springer, Berlin, 2005, pp. 152–162.
- [32] P. LEUPOLD: *Partial Words for DNA Coding*. In: DNA 10, Lecture Notes in Computer Science 3384, Springer, Berlin, 2005, pp. 224–234.
- [33] P. LEUPOLD: *n-Bounded Duplication Codes*. Proceedings of the ICALP-Workshop on Words, Avoidability, Complexity, Turku 2004. Technical Report 2004-07, Laboratoire de Recherche en Informatique d’Amiens, Amiens 2004.
- [34] M. CAVALIERE and P. LEUPOLD: *Evolution and Observation — A Non-Standard Way to Accept Formal Languages*. In: MCU 2004, Lecture Notes in Computer Science 3354, Springer-Verlag, Berlin, 2005, pp. 152–162.
- [35] P. LEUPOLD, V. MITRANA and J. SEMPERE: *Formal Languages Arising from Gene Repeated Duplication*. In: Aspects of Molecular Computing. Essays Dedicated to Tom Head on the Occasion of his 70th Birthday. LNCS 2950, Springer Verlag, Berlin, 2004, pp. 297–308.
- [36] M. CAVALIERE and P. LEUPOLD: *Evolution and Observation – A New Way to Look at Membrane Systems*. In: Membrane Computing, International Workshop, WMC 2003, Revised Papers. Lecture Notes in Computer Science 2933, Springer-Verlag, Berlin, 2004, pp. 70–87.
- [37] P. LEUPOLD: *Some Properties of Context-Free Languages Related to Primitive Words*. In: Preproceedings of WORDS’03, TUCS General Publications, Turku, 2003.
- [38] S. HORVÁTH, P. LEUPOLD and G. LISCHKE: *Roots and Powers of Regular Languages*. In: Developments in Language Theory 2002, Lecture Notes in Computer Science 2450, Springer-Verlag, Berlin, 2002, pp. 220–230.

Invited Conference Lectures

- [39] P. LEUPOLD: Beobachtersysteme. Theorietag Formale Sprachen, September 2010.
- [40] P. LEUPOLD: *How to make Biological Systems Compute: Simply Observe Them*. In: 2nd Workshop on Computing and Communications from Biological Systems: Theory and Applications, Hyogo, 2008, The ACM Digital Library, pp. 1–6.
- [41] M. CAVALIERE and P. LEUPOLD: *Complexity through the Observation of Simple Systems*. International Workshop on The Complexity of Simple Programs. Cork University Press, Cork, 2008, pp. 23–34.

Other Conference Proceedings and Volumes

- [42] P. LEUPOLD: *Deletion of Squares in Suffix Arrays*. Proceedings Workshop Algebraic Systems and Theoretical Computer Science, Research Institute for Mathematical Sciences, Kyoto, Kokyuruko Series, 2012.
- [43] P. LEUPOLD: *Efficient Reduction of Square Factors in Strings*. Proceedings LA Symposium, Research Institute for Mathematical Sciences, Kyoto, Kokyuruko Series, 2012.
- [44] P. LEUPOLD: *Reducing Repetitions*. Proceedings Workshop Algorithmic and Computational Theory in Algebra and Languages, Research Institute for Mathematical Sciences, Kyoto, Kokyuruko Series, 2011.
- [45] P. LEUPOLD and A. MEDUNA: *Finitely Expandable Deep PDAs*. Automata, Formal Languages and Algebraic Systems, Proceedings in CD-ROM, Kyoto, 2008.
- [46] P. LEUPOLD: *Regularity Preservation by String-Rewriting Systems Based on Periods*. Proceedings Workshop Algorithmic and Computational Theory in Algebra and Languages, Research Institute for Mathematical Sciences, Kyoto, Kokyuruko Series, 2008.
- [47] P. LEUPOLD: *Duplication Roots – Extended Abstract*. In: Proceedings Theorietag Automaten und Formale Sprachen, TU Wien, Wien, 2006, pp. 91–93.

Academic Theses

- [48] P. LEUPOLD: *Languages Generated by Iterated Idempotencies*. Dissertation, Universitat Rovira i Virgili, Tarragona, 2006.
- [49] P. LEUPOLD: *Potenzen von Sprachen*. Diplomarbeit, Friedrich-Schiller-Universität Jena, 2002.
- [50] P. LEUPOLD: *Primitive Wörter*. Studienarbeit, Friedrich-Schiller-Universität Jena, 2001.

Others

- [51] P. LEUPOLD: Sequence A160675, Cardinalities of Duplication Roots. In: N. J. A. Sloane : The On-Line Encyclopedia of Integer Sequences. <http://oeis.org/A160675>, 2009.