

# Curriculum vitæ

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## Personal Data

- Date of Birth: December 21st, 1958
- Place of Birth: Bratislava, Czechoslovakia (now Slovakia)
- Citizenship: French and Slovak

## Education

1. Habilitation, March 1994, University Henri Poincaré, Nancy, France
2. “Doctor of Computer Science” (equivalent to *Docteur du troisième cycle* in France), June 1983, Comenius University, Bratislava, Czechoslovakia

## Employment History

**10/1992 to present:** Senior Research Fellow (*Chargé de recherche 1ère classe*), *Centre National de la Recherche Scientifique* (French National Research Center)

**04/2002 to present:** Researcher in the laboratory LIX (CNRS, UMR 7161) at École Polytechnique

**10/1987 to 03/2002:** Researcher in the laboratory LORIA (CNRS, UMR 7503) in Nancy

**09/1998 – 08/1999:** Temporary associated professor at the University Henri Poincaré, Nancy 1

**03/1996 – 04/1996, 05/1998, 05/1999, 05/2000, 06/2002, 06/2003, ...**

**06/2006, 03/2007, and 05/2009:** Visiting position at the Technical University of Vienna, Austria, *Institut für Computersprachen, Abteilung für Anwendung der formalen Logik*, on the invitation of Profs. Gernot Salzer and Alexander Leitsch.

**08/1994 – 07/1995:** Sabbatical stay as a Research Associate at the University of California in Santa Cruz, on the invitation of professor Phokion G. Kolaitis

**01/1993 – 12/1997:** Vice-responsible of the EURECA research group in the scientific laboratory CRIN & INRIA-LORRAINE (now LORIA)

**10/1988 – 09/1992:** Research Fellow (*Chargé de recherche 2ème classe*), CNRS

**10/1987 – 09/1988** Visiting Scientist (*Chargé de recherche associé*), CNRS

**07/1983 – 09/1987** Research Scientist, Institute of Socio-Economic Information and Automation of Control (VUSEI-AR), Bratislava, Czechoslovakia

## Current Research Interests

Computational Complexity, Counting Complexity, Constraint Satisfaction Problems, Analysis of Algorithms, Automated Deduction, Equational Logic, Term Rewriting Systems and Unification.

## Received Grants

1. AMADEUS research project PAI with the Technical University in Vienna, Austria (Gernot Salzer), 2009-2010.
2. AMADEUS research project PAI with the Technical University in Vienna, Austria (Gernot Salzer), 2004-2005.
3. AMADEUS research project PAI with the Technical University in Vienna, Austria (Gernot Salzer), 1999-2001.
4. NATO Scientific Grant for the sabbatical stay at the University of California in Santa Cruz, academic year 1994-95.
5. Grant *Projet STIMULATION*, Institut National Polytechnique de Lorraine, 1991.

## Teaching Experience

### Undergraduate level:

Computer Science Department, University of Nancy, France

- Mathematical Methods for Computer Science (mainly Logic, Analysis of Algorithms, and Formal Languages and Automata) (1998-99)
- Programming in Java (1998-99)
- Functional Programming in ML (1991-92, 1992-93)

Computer Science Department, University of Paris 11, Orsay, France

- Introduction to Theoretical Computer Science (labs 2001-2002 and 2002-2003)

### Graduate level:

M.Sc. Computer Science, Paris

- Algorithms and Complexity of Constraint Satisfaction Problems, taught together with Manuel Bodirsky, 50% (12 hours) of the teaching load (2008-2009)
- Design of Algorithms for Combinatorial Optimization, Part: Complexity of Constraint Satisfaction Problems (2004-2005)

Computer Science Department, University of Nancy, France

- Complexity and Analysis of Algorithms (1999-2000, 2001-2002)
- Information and Coding Theory (1998-99, 1999-2000, 2000-2001, and 2001-2002)
- Rewrite Systems and Unification (1990-91, 1991-92, 1992-93, and 1993-94)

Technical University of Vienna, Austria

- Rewrite Systems and Unification (1995-96)
- Constraint Logic Programming (1997-98 and 1998-99)
- Error correcting codes (1999-2000 and 2001-2002)

## Supervised Students

### Ph.D. Students

**Laurent Juban:** 1996-1999. Defended his Ph.D. on December 21st, 1999. Now: in industry — SAP France, project leader.

**Florian Richoux:** 2006-current. PhD defence planned on October 30, 2009.

**Vincent Rudelli:** 2008-current.

### Post-Doctoral Students

**Gustav Nordh:** September 2007 — August 2008. Now: Assistant professor at the Computer Science Department, University of Linköping, Sweden.

### M.Sc. Students

**Lamia Djerid:** 1992-93.

**Romuald Didelot:** 1999-2000.

**Julien Demouth:** 2004-2005.

**Vincent Rudelli:** 2007-2008.

## Participation on PhD Committees

**Olivier Gasquet:** first reader, University Paul Sabatier – Toulouse 3, July 1994

**Ali Amaniss:** first reader, University Henri Poincaré – Nancy 1, September 1996

**Thierry Aimé:** first reader, University Bordeaux 1, October 1996

**Avy Sharell:** first reader, University Paris 11 – Orsay, February 1998

**Olivier Gasquet:** D.Sc., first reader, University Paul Sabatier – Toulouse 3, December 2002

**Florent Madelaine:** examiner, University of Caen, March 2003

**Bruno Zanuttini:** first reader, University of Caen, July 2003

**Guillaume Malod:** examiner, University Claude Bernard – Lyon 1, July 2003

**Nicolas Peltier:** D.Sc., examiner, Institut National Polytechnique de Grenoble, June 2007.

## Participation on Program Committees

**CADE 2009:** program committee member  
*22nd International Conference on Automated Deduction,*  
Montreal (Canada), August 2-7, 2009.

**LPAR 2006:** program committee co-chair  
*13th International Conference on Logic for Programming, Artificial Intelligence, and Reasoning,*  
Phnom Penh (Cambodia), November 13-17, 2006.

**LPAR 2005:** program committee member  
*12th International Conference on Logic for Programming, Artificial Intelligence, and Reasoning,*  
Montego Bay (Jamaica), December 2-6, 2005.

**LPAR 2004:** program committee member  
*11th International Conference on Logic for Programming, Artificial Intelligence, and Reasoning,*  
Montevideo (Uruguay), March 14-18, 2005.

**LPAR 2003:** program committee member  
*10th International Conference on Logic for Programming, Artificial Intelligence, and Reasoning,*  
Almaty (Kazakhstan), September 22-26, 2003.

**CADE-19:** program committee member  
*19th International Conference on Automated Deduction,*  
Miami Beach (Florida, USA), July 28-August 2, 2003.

**LPAR 2002:** program committee member  
*9th International Conference on Logic for Programming, Artificial Intelligence, and Reasoning,*  
Tbilisi (Republic of Georgia), October 14-18, 2002.

**SOFSEM '98:** program committee member

*25th Annual Seminar on Current Trends in Theory and Practice of Informatics,*  
Jasná (Slovakia), November 21-27, 1998.

## **Participation in French and International Projects**

**GDR 673 ALP:** Head of the section on *Complexity and Finite Models*.

**AMADEUS:** Head of the french part of an international project from 1999 to 2001 and from 2003 to 2005 between France and Austria.

**COMPASS:** ESPRIT Basic Research Working Group 3264

Participation as researcher of the group Eureca in Nancy.

**PRC Computer Science:** Project *Mechanisation of Reasoning*.

Participation as researcher of the group in Nancy.

## **Organization of Workshops and Conferences**

**CEDAR'08:**

Complexity, Expressibility, and Decidability in Automated Reasoning (CEDAR'08).

Workshop associated with the 4th International Joint Conference on Automated Reasoning (IJCAR 2008)

Sydney (Australia), August 10, 2008.

URL = <http://www.mpi-inf.mpg.de/~sofronie/cedar08.html>

Co-organizer (with Franz Baader, Silvio Ghilardi, Ulrike Sattler, and Viorica Sofronie-Stokkermans) of the workshop.

**LPAR 2006:**

13th International Conference on Logic for Programming, Artificial Intelligence, and Reasoning (LPAR 2006)

Phnom Penh (Cambodia), November 13-17, 2006.

URL = <http://www.lix.polytechnique.fr/~hermann/LPAR2006/>

Co-chair (with Andrei Voronkov) of the conference.

The proceedings appeared as volume 4246 of *Lecture Notes in Artificial Intelligence*, printed by Springer-Verlag.

**2nd International Workshop on Complexity in Automated Deduction:**

satellite workshop of CADE-18 within the FLoC'02 conference

Copenhagen (Denmark), July 25-26, 2002.

Co-organizer (with Georg Gottlob and Michael Rusinowitch) of the workshop.

Selected papers appeared in *Theory of Computing Systems*, 37(6), 2004.

**Workshop on Complexity, Finite Models, and Databases:**

University Paris 2 (France), June 7-8, 2001.

Co-organizer (with Michel de Rougemont) of the workshop.

**Workshop on Complexity in Automated Deduction:**

LORIA, Nancy (France), June 29, 1999.

Member of the organizing committee and of the local arrangements.

**Workshop on Schematisation Techniques**

satellite workshop of the 13th International Conference on Automated Deduction within the FLoC'96 conference

New Brunswick (New Jersey, USA), July/August 1996.

URL = <http://logic.tuwien.ac.at/cade13/>

Co-organizer (with Gernot Salzer) of the workshop.

**CADE-12:** 12th International Conference on Automated Deduction, Nancy (France), June 1994;

Member of the organizing committee.

**List of Publications****Edition of Proceedings**

P1 M. Hermann and A. Voronkov, editors. *Proceedings 13th International Conference: Logic for Programming, Artificial Intelligence, and Reasoning (LPAR 2006)*, volume 4246 of *Lecture Notes in Artificial Intelligence*, Phnom Penh (Cambodia). Springer-Verlag, November 2006.

**Edition of Special Issues**

I1 G. Gottlob, M. Hermann, and M. Rusinowitch. Special Issue of Papers From the 2nd International Workshop on Complexity in Automated Deduction. *Theory of Computing Systems*, 37(6), 2004.

**Publications in Journals**

J1 A. Gil, M. Hermann, G. Salzer, and B. Zanuttini. Efficient algorithms for constraint description problems over finite totally ordered domains. *SIAM Journal on Computing*, 38(3):922–945, 2008.

J2 M. Hermann. On Boolean primitive positive clones. *Discrete Mathematics*, 308(15):3151–3162, 2008.

J3 A. Durand et M. Hermann. On the counting complexity of propositional circumscription. *Information Processing Letters*, 106(4):164–170, 2008.

J4 N. Creignou, M. Hermann, A. Krokhin, et G. Salzer. Complexity of clausal constraints over chains. *Theory of Computings Systems*, 42(2):239–255, 2008.

J5 A. Durand, M. Hermann, and P. G. Kolaitis. Subtractive reductions and complete problems for counting complexity classes. *Theoretical Computer Science*, 340(3):496–513, 2005.

- J6 A. Durand, M. Hermann, and L. Juban. On the complexity of recognizing the Hilbert basis of a linear Diophantine system. *Theoretical Computer Science*, 270(1-2):625–642, 2002.
- J7 M. Hermann and P. G. Kolaitis. Unification algorithms cannot be combined in polynomial time. *Information and Computation*, 162(1-2):24–42, 2000.
- J8 M. Hermann and P. G. Kolaitis. Computational complexity of simultaneous elementary matching problems. *Journal of Automated Reasoning*, 23(2):107–136, 1999.
- J9 M. Hermann and R. Galbavý. Unification of infinite sets of terms schematized by primal grammars. *Theoretical Computer Science*, 176(1-2):111–158, 1997.
- J10 N. Creignou and M. Hermann. Complexity of generalized satisfiability counting problems. *Information and Computation*, 125(1):1–12, 1996.
- J11 M. Hermann and P. G. Kolaitis. The complexity of counting problems in equational matching. *Journal of Symbolic Computation*, 20(3):343–362, 1995.
- J12 M. Hermann, C. Kirchner, and H. Kirchner. Implementations of term rewriting systems. *Computer Journal*, 34(1):20–34, February 1991. [Reviewed in *Computing Reviews*, February 1992; under the number 9202-0102.]
- J13 M. Hermann. Chain properties of rule closures. *Formal Aspects of Computing*, 2(3):207–225, 1990.

### **Publications in Conferences**

- C1 M. Hermann and R. Pichler. Counting complexity of minimal cardinality and minimal weight abduction. In S. Hölldobler, C. Lutz, and H. Wansing, editors, *Proceedings 11th European Conference on Logics in Artificial Intelligence (JELIA 2008), Dresden (Germany)*, volume 5293 of *Lecture Notes in Artificial Intelligence*, pages 206–218. Springer-Verlag, September/October 2008.
- C2 M. Hermann and F. Richoux. Sur la complexité algorithmique des problèmes de satisfaction de contraintes disjonctifs. In *Actes 4ièmes Journées Francophones de Programmation par Contraintes (JFPC 2008), Nantes (France)*, pages 209–218, June 2008.
- C3 M. Hermann and R. Pichler. Complexity of counting the optimal solutions. In X. Hu and J. Wang, editors, *Proceedings 14th International Conference on Computing and Combinatorics (COCOON 2008), Dalian (China)*, volume 5092 of *Lecture Notes in Computer Science*, pages 149–159. Springer-Verlag, June 2008.
- C4 V. Chepoi, N. Creignou, M. Hermann, and G. Salzer. Deciding the satisfiability of propositional formulas in finitely-valued signed logics. In G. W. Dueck, editor, *Proceedings 38th IEEE International Symposium on Multiple-Valued Logic (ISMVL 2008), Dallas (Texas, USA)*, pages 100–105, May 2008.
- C5 M. Hermann et B. Sertkaya. On the complexity of computing generators of closed sets. In R. Medina et S. Obiedkov, editeurs, *Proceedings 6th International Conference on Formal Concept Analysis (ICFCA 2008), Montréal (Canada)*, volume 4933 of *Lecture Notes in Computer Science*, pages 158–168. Springer-Verlag, February 2008.

- C6 Ph. Chapdelaine, M. Hermann, and I. Schnoor. Complexity of default logic on generalized conjunctive queries. In Ch. Baral, G. Brewka, and J. Schlipf, editors, *Proceedings 9th International Conference on Logic Programming and Nonmonotonic Reasoning (LPNMR 2007)*, Tempe (Arizona, USA), volume 4483 of *Lecture Notes in Artificial Intelligence*, pages 58–70. Springer-Verlag, May 2007.
- C7 M. Hermann and R. Pichler. Counting complexity of propositional abduction. In M. M. Veloso, editor, *Proceedings 20th International Joint Conference on Artificial Intelligence (IJCAI 2007)*, Hyderabad (India), pages 417–422. AAAI Press, January 2007.
- C8 A. Gil, M. Hermann, G. Salzer, and B. Zanuttini. Efficient algorithms for constraint description problems over finite totally ordered domains. In D. Basin and M. Rusinowitch, editors, *Proceedings 2nd International Joint Conference on Automated Reasoning (IJCAR'04)*. Cork (Ireland), volume 3097 of *Lecture Notes in Computer Science*, pages 244–258. Springer-Verlag, July 2004.
- C9 M. Bauland, P. Chapdelaine, N. Creignou, M. Hermann, and H. Vollmer. An algebraic approach to the complexity of generalized conjunctive queries. In H. H. Hoos and D. G. Mitchell, editors, *Proceedings 7th International Conference on Theory and Applications of Satisfiability Testing, (SAT 2004)*, Vancouver (British Columbia, Canada), volume 3542 of *Lecture Notes in Computer Science*, pages 30–45. Springer-Verlag, May 2004. Refereed selected papers.
- C10 A. Durand and M. Hermann. The inference problem for propositional circumscription of affine formulas is coNP-complete. In H. Alt and M. Habib, editors, *Proceedings 20th Symposium on Theoretical Aspects of Computer Science (STACS 2003)*, Berlin (Germany), volume 2607 of *Lecture Notes in Computer Science*, pages 451–462. Springer-Verlag, February 2003.
- C11 A. Durand, M. Hermann, and P. G. Kolaitis. Subtractive reductions and complete problems for counting complexity classes. In M. Nielsen and B. Rován, editors, *Proceedings 25th International Symposium on Mathematical Foundations of Computer Science (MFCS 2000)*, Bratislava (Slovakia), volume 1893 of *Lecture Notes in Computer Science*, pages 323–332. Springer-Verlag, August 2000.
- C12 M. Hermann, L. Juban, and P. G. Kolaitis. On the complexity of counting the Hilbert basis of a linear Diophantine system. In H. Ganzinger, D. McAllester, and A. Voronkov, editors, *Proceedings 6th International Conference on Logic for Programming and Automated Reasoning (LPAR'99)*, Tbilisi (Republic of Georgia), volume 1705 of *Lecture Notes in Artificial Intelligence*, pages 13–32. Springer-Verlag, September 1999.
- C13 A. Durand, M. Hermann, and L. Juban. On the complexity of recognizing the Hilbert basis of a linear Diophantine system. In M. Kutylowski, L. Pacholski, and T. Wierzbicki, editors, *Proceedings 24th International Symposium on Mathematical Foundations of Computer Science (MFCS'99)*, Szklarska Poręba (Poland), volume 1672 of *Lecture Notes in Computer Science*, pages 92–102. Springer-Verlag, September 1999.
- C14 M. Hermann and G. Salzer. On the word, subsumption, and complement problem for recurrent term schematizations. In L. Brim, J. Gruska, and J. Zlatuška, editors, *Proceedings 23rd International Symposium on Mathematical Foundations of Computer Science (MFCS'98)*, Brno (Czech Republic), volume 1450 of *Lecture Notes in Computer Science*, pages 257–266. Springer-Verlag, August 1998.
- C15 M. Hermann and P. G. Kolaitis. On the complexity of unification and disunification in commutative idempotent semigroups. In G. Smolka, editor, *Proceedings 3rd International Conference on Principles*

- and *Practice of Constraint Programming (CP'97)*, Linz (Austria), volume 1330 of *Lecture Notes in Computer Science*, pages 283–297. Springer-Verlag, October 1997.
- C16 A. Amaniss, M. Hermann, and D. Lugiez. Set operations for recurrent term schematizations. In M. Bidoit and M. Dauchet, editors, *Proceedings 7th International Joint Conference on Theory and Practice of Software Development (TAPSOFT'97)*, Lille (France), volume 1214 of *Lecture Notes in Computer Science*, pages 333–344. Springer-Verlag, April 1997.
- C17 M. Hermann and P. G. Kolaitis. Unification algorithms cannot be combined in polynomial time. In M.A. McRobbie and J.K. Slaney, editors, *Proceedings 13th International Conference on Automated Deduction (CADE'96)*, New Brunswick (New Jersey, USA), volume 1104 of *Lecture Notes in Artificial Intelligence*, pages 246–260. Springer-Verlag, July/August 1996.
- C18 M. Hermann and P. G. Kolaitis. Computational complexity of simultaneous elementary AC-matching problems. In J. Wiedermann and P. Hájek, editors, *Proceedings 20th International Symposium on Mathematical Foundations of Computer Science (MFCS'95)*, Prague (Czech Republic), volume 969 of *Lecture Notes in Computer Science*, pages 359–370. Springer-Verlag, August/September 1995.
- C19 M. Hermann and P. G. Kolaitis. The complexity of counting problems in equational matching. In A. Bundy, editor, *Proceedings 12th International Conference on Automated Deduction (CADE'94)*, Nancy, (France), volume 814 of *Lecture Notes in Artificial Intelligence*, pages 560–574. Springer-Verlag, June 1994.
- C20 M. Hermann. On the relation between primitive recursion, schematization, and divergence. In H. Kirchner and G. Levi, editors, *Proceeding 3rd Conference on Algebraic and Logic Programming (ALP'92)*, Volterra (Italy), volume 632 of *Lecture Notes in Computer Science*, pages 115–127. Springer-Verlag, September 1992.
- C21 M. Hermann. On proving properties of completion strategies. In R.V. Book, editor, *Proceedings 4th Conference on Rewriting Techniques and Applications (RTA'91)*, Como (Italy), volume 488 of *Lecture Notes in Computer Science*, pages 398–410. Springer-Verlag, April 1991.
- C22 H. Kirchner and M. Hermann. Meta-rule synthesis from crossed rewrite systems. In S. Kaplan and M. Okada, editors, *Proceedings 2nd International Workshop on Conditional and Typed Rewriting Systems (CTRS'90)*, Montreal (Canada), volume 516 of *Lecture Notes in Computer Science*, pages 143–154. Springer-Verlag, June 1990.
- C23 M. Hermann. Vademecum of divergent term rewriting systems. In “*Avancées en Programation*” – *Journées AFCET-GROPLAN*, Nice (France), volume 70, pages 148–164. BIGRE, January 1990.
- C24 M. Hermann. Chain properties of rule closures. In B. Monien and R. Cori, editors, *Proceedings of the 6th Annual Symposium on Theoretical Aspects of Computer Science (STACS'89)*, Paderborn (Germany), volume 349 of *Lecture Notes in Computer Science*, pages 339–347. Springer-Verlag, February 1989.
- C25 M. Hermann and I. Prívvara. On nontermination of Knuth-Bendix algorithm. In L. Kott, editor, *Proceedings 13th International Conference on Automata Languages and Programming (ICALP'86)*, Rennes (France), volume 226 of *Lecture Notes in Computer Science*, pages 146–156. Springer-Verlag, July 1986.

## **Publications on Research Report Servers**

S1 M. Hermann and R. Pichler. Complexity of counting the optimal solutions. Technical Report TR08-044, Electronic Colloquium on Computational Complexity, 2008.

## **Habilitation (PhD)**

H1 M. Hermann. *Divergence of the rewrite systems and schematization of the infinite sets of terms*, Habilitation (CRIN Research Report 94-T-065), University Henri Poincaré, Nancy, March 1994.