

Curriculum Vitae

Phokion G. Kolaitis
<http://www.cs.ucsc.edu/~kolaitis>
Computer Science Department
University of California, Santa Cruz
Santa Cruz, CA 95064
kolaitis@cs.ucsc.edu
and
Computer Science Principles and Methodologies
IBM Almaden Research Center
650 Harry Road
San Jose, CA 95120, USA
kolaitis@almaden.ibm.com

Current Positions

Professor of Computer Science, University of California, Santa Cruz (joined UC Santa Cruz in 1988)

Research Staff Member (part-time), Department of Computer Science Principles and Methodologies, IBM Almaden Research Center, San Jose.

Positions Held

- 2004–08 Research Staff Member and Senior Manager, Computer Science Principles and Methodologies, IBM Almaden Research Center, San Jose, June 2004 to September 2008 (on leave of absence from UC Santa Cruz).
- 2001–02 Academic Visitor, Foundations of Computer Science, IBM Almaden Research Center, San Jose (on sabbatical leave from UC Santa Cruz).
- 1997–01 Chair, Computer Science Department, UC Santa Cruz.
- 1994– Professor of Computer Science, UC Santa Cruz.
- 1993–94 Visiting Associate Professor, Computer Science Department, Stanford University (supported by a Guggenheim Fellowship and a sabbatical leave from UC Santa Cruz).
- 1990–94 Associate Professor of Computer Science, UC Santa Cruz.
- 1988–90 Assistant Professor of Computer Science, UC Santa Cruz.
- 1987–88 Visiting Associate Professor, Computer Science Department, Stanford University.
- 1986–87 Visiting Scientist, Foundations of Computer Science, IBM Almaden Research Center, San Jose.
- 1981–86 Assistant Professor of Mathematics, Occidental College, Los Angeles (promoted to Associate Professor and granted tenure in April 1986).
- 1984–85 Visiting Assistant Professor, Dept. of Mathematics, University of California, Los Angeles (partially supported by a J.D. MacArthur Research Professorship from Occidental College).
- 1979–81 L.E. Dickson Instructor, Department of Mathematics, The University of Chicago.

Education

Diploma in Mathematics, University of Athens, Greece, 1973.

M.A. in Mathematics, University of California, Los Angeles, 1974.

Ph.D. in Mathematics, University of California, Los Angeles, 1978.

Research Interests

Principles of Database Systems, Logic in Computer Science, Computational Complexity

Awards and Honors

Best Paper Award for the paper “Repair Checking in Inconsistent Databases: Algorithms and Complexity” (co-authored with F. Afrati), 12th International Conference on Database Theory - ICDT '09, 2009.

ACM PODS Alberto O. Mendelzon Test-of-Time Award for the paper “Conjunctive-query containment and constraint satisfaction” (co-authored with M.Y. Vardi), 2008.

Foreign Member, Finnish Academy of Science and Letters, elected in 2007.

Fellow of the Association of Computing Machinery (ACM), elected in 2005.

IBM Research Division, First Invention Plateau, 2008.

IBM Research Division Outstanding Technical Achievement Award for *Schema Mappings Research: Theory and Practice* (joint work with R. Fagin and L. Popa), 2008.

IBM Research Division Outstanding Innovation Award for *Foundations of Schema Mappings* (joint work with R. Fagin and L. Popa), 2005.

IBM Research Division 2004 Pat Goldberg Memorial Best Paper Award in Computer Science, Engineering, and Mathematics for the paper *Composing Schema Mappings: Second-Order Dependencies to the Rescue* (co-authored with R. Fagin, L. Popa, and W.-C. Tan).

Excellence in Teaching Award, awarded by the graduating computer science and computer engineering majors of UC Santa Cruz, 1995.

Guggenheim Fellowship, awarded by the John Simon Guggenheim Memorial Foundation, 1993-94.

The joint work with M.Y. Vardi on 0-1 laws for fragments of second-order logic earned an IBM Research Division Outstanding Innovation Award in 1992.

Other Honors

Plumer Visiting Research Fellow, St. Anne’s College, University of Oxford, January-March, 2009.

Invited Participant, Special Programme on Logic and Algorithms, Isaac Newton Institute for Mathematical Sciences, Cambridge, UK, February-March 2006.

Invited Professor, LIX Laboratory, Ecole Polytechnique, Paris, France, February 2003.

Invited Participant, 2000-01 Program on Mathematical Logic, Institut Mittag-Leffler, The Swedish Royal Academy of Sciences, Sweden, April 2001.

Invited Professor, University of Nancy and LORIA (French National Institute for Research in Computer Science and Control), Nancy, France, June-July 1993 and July 1997.

Extramural Grants (past twelve years)

- 2009–13 Principal Investigator, “Data Interoperability via Schema Mappings” (co-PI: Professor W.-C. Tan), NSF ARRA Grant No. IIS-0905276, \$1,151,548.
- 2004–09 Principal Investigator, IIS-0430994 “Metadata Model Management: Schema Mappings and Data Exchange” (co-PI: Professor W.-C. Tan), NSF Grant No. IIS-0430994, \$759,722.
- 2000–04 Principal Investigator, “Constraint Satisfaction and Database Query Evaluation”, NSF Grant No. IIS-9907419, \$188,388.
- 1998–01 Principal Investigator, “Automated Deduction and Computational Complexity”, NSF Grant No. CCR-9732041, \$182,982
- 1997–00 Principal Investigator, “Aspects of Computation Theory and Logic”, NSF Grant No. CCR-9610257, \$248,999.

Current and Recent Editorial Board Service

Area Editor, Database Systems and Theory, *Journal of the Association for Computing Machinery - JACM*, 2009 to present.

Associate Editor, *Association for Computing Machinery Transactions on Database Systems - ACM TODS*, 2005 to present.

Editorial Board Member, *Journal of Logic and Computation*, 1991 to present.

Editorial Board Member, *Theory of Computing Systems*, 2001 to present.

Editorial Board Member, *International Journal of Foundations of Computer Science*, 2002 to present.

Managing Editor, *Annals of Pure and Applied Logic*, January 1997 to December 2008.

Editorial Board Member, *Bulletin of Symbolic Logic*, January 2002 to December 2007.

Leadership Service to the Profession (past twelve years)

General Chair, ACM Symposium on Principles of Database Systems (PODS), June 2006 to June 2008.

General Chair, IEEE Symposium on Logic in Computer Science (LICS), July 2003 to August 2006.

Program Committee Chair, 18th Annual IEEE Symposium on Logic in Computer Science (LICS 2003).

Program Committee Chair, 21st Annual ACM Symposium on Principles of Database Systems (PODS 2002).

Scientific Committee Chair, 2nd Panhellenic Logic Symposium, Delphi, Greece, 1999.

Program Committee Co-Chair, 6th International Conference on Database Theory (ICDT '97).

Co-organizer, Dagstuhl Seminar 09941 on *The Constraint Satisfaction Problem: Complexity and Approximability*, Schloss Dagstuhl - Leibniz Center for Informatics, Germany, October 2009.

Co-organizer INFINT 2009 - Bertinoro Workshop on *Data and Service Integration*, University Residential Center of Bertinoro, Italy, 2009.

Co-organizer, American Institute of Mathematics Workshop on *Applications of Universal Algebra and Logic to the Constraint Satisfaction Problem*, Palo Alto, California, April 2008.

Co-organizer, INFINT 2007 - Bertinoro Workshop on *Information Integration*, University Residential Center of Bertinoro, Italy, 2007.

Co-organizer, Dagstuhl Seminar 06401 on *Complexity of Constraints*, Schloss Dagstuhl - Leibniz Center for Informatics, Germany, October 2006.

Other Service to the Profession (past twelve years)

- Member, Selection Committee, 2009, ACM PODS Alberto O. Mendelzon Test-of-Time Award.
- Member, Selection Committee, 2009, IEEE Symposium on Logic in Computer Science Test-of-Time Award.
- Member, Executive Committee, ACM Symposium on Principles of Database System, June 2008 to present
- Program Committee Member, 2009 International Conference on Data Engineering (ICDE 2009).
- Program Committee Member, 11th International Conference on Database Theory (ICDT '07).
- Membership Committee Member, Association for Symbolic Logic, 2007 to present.
- Member, Organizing Committee, IEEE Annual Symposium on Logic in Computer Science, August 2006 to present.
- Program Committee Member, 17th Annual IEEE Symposium on Logic in Computer Science (LICS 2002).
- Steering Committee Member, North American Summer School on Logic, Language and Information, 2002 to present.
- Program Committee Member, 20th Annual ACM Symposium on Principles of Database Systems (PODS 2001).
- Program Committee Member, 16th Annual ACM Symposium on Principles of Database Systems (PODS 1997).

Academic Senate Service at UC Santa Cruz (past twelve years)

- 2009- Chair, Committee on Research and Vice-Chair, University of California Committee on Research Policy (UCORP)
- 2008-09 Chair, Committee on Research and UC Santa Cruz Representative to the University of California Committee on Research Policy (UCORP).
- 2008- Member, Senate Executive Committee.
- 2003-04 Member, Committee on Planning and Budget
Member, Committee on Career Advising
- Fall 2000 Graduate Council Chair and UC Santa Cruz Representative to the University of California Coordinating Committee for Graduate Affairs (CCGA)
- 1999-01 Member, Graduate Council
- 1996-99 Member, Committee on Educational Policy (CEP).

Recent Invited Presentations to Conferences and Workshops

- 2009 “Relational Databases, Logic, and Complexity”, Invited Short Course, 2009 GII Doctoral School on Advances in Databases, University of Calabria Italy, September 2009.
- “Repair Checking in Inconsistent Databases: Algorithms and Complexity”, Invited Talk, Tenth International Workshop on Logic and Computational Complexity (LCC ’09), Los Angeles, August 2009.
- “Foundations and Applications of Schema Mappings”, Plenary Talk, 2009 Computability in Europe Conference (CiE 2009), Heidelberg, Germany, July 2009.
- 2008 “Foundations and Applications of Schema Mappings”, Invited Tutorial, 2008 Workshop on Logic and Algorithms (LAA 2008), University of Edinburgh, UK, July 2008.
- “Computer Science Workshops: Blurring the distinction between conferences and workshops”, Invited Panel Presentation, Panel on “Paper and Proposal Reviews: Is the Process Flawed?”, 2008 CRA Snowbird Conference, Snowbird, Utah, July 2008.
- “Logic and Constraint Satisfaction: An Introduction”, Invited Tutorial, AIM Workshop on “Applications of universal algebra and logic to the constraint satisfaction problem”, American Institute of Mathematics (AIM), Palo Alto, California, March 2008.
- 2007 “Reflections on Finite Model Theory”, Invited Talk, 22nd Annual IEEE Symposium on Logic in Computer Science (LICS 2007), Wroclaw, Poland, July 2007.
- Invited Panelist, Panel on “How can academia and industry work together to address educational issues”, Google Education Summit, Mountain View, California, July 2007.
- 2006 “Data Exchange”, Invited Short Course, Bertinoro Ph.D. School on Data and Service Integration (DASI ’06), Bertinoro, Italy, December 2006.
- “Constraint Satisfaction and Logic”, Invited Tutorial, Workshop on Mathematics of Constraint Satisfaction: Algebra, Logic and Graph Theory, Isaac Newton Institute Satellite Workshop at the University of Oxford, Special Programme on Logic and Algorithms, Oxford, UK, March 2006.
- “Foundations of Schema Mappings”, Invited Tutorial, Workshop on Logic and Databases, Special Programme on Logic and Algorithms, Isaac Newton Institute for Mathematical Sciences, Cambridge, UK, March 2006.
- 2005 “Constraint Satisfaction, Complexity, and Logic”, Invited Tutorial, Logic Colloquium 2005, Association for Symbolic Logic European Summer Meeting, Athens, Greece, August 2005.
- “Inductive Definability and Finite-Variable Logics: From Logic to Computer Science”, Invited Talk, Fifth Panhellenic Logic Symposium (PLS 2005), Athens, Greece, July 2005.
- “Schema Mappings, Data Exchange, and Metadata Management, Keynote Talk”, 24th Annual ACM Symposium on Principles of Database Systems (PODS 2005), Baltimore, Maryland, June 2005.
- Invited Talk, Logic Colloquium, University of California, Los Angeles, May 2005.
- “Constraint Satisfaction, Databases, and Logic”, Invited Short Course, Computer Science Department, University of Rome “La Sapienza”, Italy, April 2005.
- 2004 Invited Speaker, Workshop on Logic and Computational Complexity, Turku, Finland, July 2004.
- Invited Speaker, Third Hellenic Conference on Artificial Intelligence (SETN ’04), Samos, Greece, May 2004.

- Invited Talk, Logic Colloquium, University of California, Berkeley, April 2004.
- 2003 Invited Speaker, CISE Distinguished Lecture Series, National Science Foundation, December 2003.
- Invited Speaker, Distinguished Lecture Series, Computer Science Department, University of Toronto, November 2003.
- Invited Speaker, Eighteenth International Joint Conference on Artificial Intelligence (IJCAI 2003), Acapulco, Mexico, August 2003.
- Invited Speaker, 2003 Annual Meeting of the Association for Symbolic Logic, Chicago, June 2003.
- Principal Speaker, 15th McGill Invitational Workshop on Computational Complexity, Bellairs Research Institute of McGill University, St. James, Barbados, March 2003.
- 2002 Invited Speaker, 2nd International Workshop on Complexity in Automated Deduction, 2002 Federated Logic Conference (FloC 2002), Copenhagen, Denmark, July 2002.
- Invited Lecturer, Advanced course on “Constraint Satisfaction, Complexity, and Logic”, 1st North American Summer School on Logic, Language and Information (NASSLLI '02), Stanford University, June 2002.
- Invited Speaker, Symposium on the Effectiveness of Logic in Computer Science (ELICS02), Max Planck Institute for Computer Science (MPI), Saarbrücken, Germany, March 2002.
- 2001 Invited Speaker, 6th International Conference on Logic Programming and Nonmonotonic Reasoning (LPNMR '01), Vienna, Austria, September 17–19, 2001.
- 2000 Invited Speaker, Ninth CSLI Workshop on Logic, Language and Computation (LLC 9), Stanford University, May 2000.
- Invited Speaker, Symposium in Honor of the 80th Birthday of Roland Fraïssé, Mathematics Institute of Luminy, Marseille, France, May 2000.
- 1999 Invited Speaker, Meeting on Finite Model Theory, Databases and Computer-Aided Verification, International Conference and Research Center for Computer Science, Schloss Dagstuhl, Germany, October 1999.
- Invited Speaker, Workshop on Complexity-theoretic and Recursion-theoretic Methods in Databases, Artificial Intelligence and Finite Model Theory, Federated Logic Conference (FLoC '99), Trento, Italy, June 1999.
- Invited Speaker, Workshop on Implicit Computational Complexity, Federated Logic Conference (FLoC '99), Trento, Italy, June 1999.
- Invited Speaker, Workshop on Complexity in Automated Deduction, LORIA, Nancy, France, June 1999.
- Invited Tutorial Speaker “Finite Model Theory: Expressiveness of Logics”, Tutorial and Workshop on Logic and Cognitive Science, Institute for Research in Cognitive Science (IRCS), University of Pennsylvania, April 1999.
- Invited Speaker, Special Session in Model Theory, 1999 Annual Meeting of the Association for Symbolic Logic, San Diego, March 1999.
- Invited Panelist, Symposium on “The Unusual Effectiveness of Logic in Computer Science”, 1999 Annual Meeting of the American Association for the Advancement of Science, Anaheim, January 1999.

Postdoctoral Scholars Sponsored

- 2008-09 Dr. Juha Kontinen, University of Helsinki; visited UC Santa Cruz from September to December 2008 supported by a grant from the Academy of Finland and a NSF grant.
- 2007-08 Dr. Balder ten Cate, University of Amsterdam, The Netherlands; visited UC Santa Cruz and the IBM Almaden Research Center from January 2008 to June 2008 supported by a NSF Grant.
- 2006-07 Dr. Vassia Pavlaki, National Technical University of Athens, Greece; visited UC Santa Cruz and the IBM Almaden Research Center from March 2007 to June 2007 supported by a NSF Grant.
- 2000-01 Dr. Victor Dalmau, Polytechnic University of Catalonia (UPC), Spain; visited UC Santa Cruz from September 2000 to December 2001 supported by a NSF Grant.
- 1997-98 Dr. Martin Otto, Technical University of Aachen, Germany; visited UC Santa Cruz during the entire academic year 1997-98, supported by a grant from DFG (German Science Foundation).
- 1995-96 Dr. Martin Grohe, University of Freiburg, Germany; visited UC Santa Cruz during the entire academic year 1995-96, supported by a postdoctoral fellowship from DAAD (German Academic Exchange Service).
- 1995-96 Dr. Kerkko Luosto, University of Helsinki, Finland; visited UC Santa Cruz from September 1995 to February 1996, supported by a grant from the Academy of Finland.
- 1994-95 Dr. Miki Hermann, INRIA-Lorraine, France; visited UC Santa Cruz during the entire academic year 1994-95, supported by a NATO postdoctoral fellowship.

Ph.D Theses Supervised

- 2006 J. Panttaja “Complexity in Databases, Games, and Logic”
- 2004 Delbert D. Bailey “Structural Phase Transitions of Boolean Satisfiability Variants”
- 2002 Albert Atserias “Fixed-Point Logics, Descriptive Complexity, and Random Satisfiability”
- 1996 Ian Barland “Expressing Optimization Problems as Integer Programs, and Undirected Path Problems: a Descriptive Complexity Approach”
- 1993 Madhukar Thakur “Descriptive Complexity of Optimization and Counting Problems”

M.S. Theses and Projects Supervised

- 2001 Delbert D. Bailey “Phase Transitions in Counting-Threshold SAT Problems”
- 2001 Jonathan Panttaja “On the Complexity of Existential k -Pebble Games”
- 2001 Lisa Meteyer “Quantification in SQL Database Query Language”
- 2000 Thomas Raffill “On the Search for a Phase Transition in AC-Matching”
- 1999 Albert Atserias “Computational Aspects of First-Order Logic on Finite Structures”
- 1998 Raymond Wheeler “On the Complexity of AC-Unification”
- 1990 Madhavan Thirumalai “Circumscription: A Formalism of Nonmonotonic Reasoning”

Patents Issued and Filed

- “System and Method for Performing a High-Level Multi-Dimensional Query on a Multi-Structural Database”, US Patent 7519582, issued on 4/14/2009; co-inventors: R. Fagin, R. Guha, R. Kumar, J. Novak, D. Sivakumar, and A. Tomkins.
- “Interactive Generation of Integrated Schema”, filed as Docket ARC8-2007-0184, July 2008; co-inventors L. Chiticariu and L. Popa.
- “Quasi-inverses of schema mappings”, filed as Docket ARC920070055, July 2007; co-inventors: R. Fagin, L. Popa, W.-C. Tan.
- “Sequential Composition of XML Schema Mappings”, filed as Docket ARC9-2005-0087US1, January 2006; co-inventors: R. Fagin, L. Popa, W.-C. Tan, C. Yu.

Books Edited

- *Complexity of Constraints : An Overview of Current Research Themes*, N. Creignou, Ph. Kolaitis, and H. Vollmer (Eds.), Lecture Notes in Computer Science 5250, Springer, 2008.
- *Proceedings of the 2nd Panhellenic Logic Symposium*, Ph. Kolaitis and G. Koletsos (Eds.), National Technical University of Athens, 1999.
- *Database Theory - ICDT '97, Proceedings of the 6th International Conference on Database Theory*, F. Afrati and Ph. Kolaitis (Eds.), Lecture Notes in Computer Science 1186, Springer-Verlag, 1997.
- *Descriptive Complexity and Finite Models*, N. Immerman and Ph. Kolaitis (Eds.), DIMACS Series in Discrete Mathematics and Theoretical Computer Science, volume 31, American Mathematical Society, 1997.

Special Issues Edited

- Selections from the *18th IEEE Annual Symposium on Logic in Computer Science (LICS 2003)*, Ph.G. Kolaitis (Ed.), *ACM Transactions on Computational Logic*, 6(4), October 2005, pp. 674–842.
- Selections from the *6th International Conference on Database Theory, (ICDT '97)*, F. Afrati and Ph.G. Kolaitis (Eds.), *Theoretical Computer Science*, Vol. 239, No. 2, May 2000, pp. 187–338.

Chapters in Book

- “The Expressive Power of Logics on Finite Models” in “Finite Model Theory and its Applications”, EATCS Series: Texts in Theoretical Computer Science, Springer, 2007, pp. 37–124.
- “A Logical Approach to Constraint Satisfaction” (with M.Y. Vardi) in “Finite Model Theory and its Applications”, EATCS Series: Texts in Theoretical Computer Science, Springer, 2007, pp. 339–371.

Articles in Journals and Peer-Reviewed Conference Proceedings

- “Laconic Schema Mappings: Computing the Core with SQL Queries” (with B. ten Cate, L. Chiticariu, and W.-C. Tan), Proceedings of the 35th International Conference on Very Large Databases (VLDB 2009), 2009, pp. 1006–1117.
- “Reverse Data Exchange: Coping with Nulls” (with R. Fagin, L. Popa, and W.-C. Tan), Proceedings of the Twenty-Eighth ACM Symposium on Principles of Database Systems (PODS 2009), 2009, pp. 23–32.

- “Random graphs and the parity quantifier” (with S. Kopparty), *Proceedings of the 41st Annual ACM Symposium on Theory of Computing* (STOC 2009), 2009, pp. 705-714.
- “Repair checking in inconsistent databases: algorithms and complexity” (with F. Afrati), *Proceedings of the 12th International Conference on Database Theory ICDT '09*, 2009, pp. 31-41; Best Paper Award.
- “Structural characterizations of schema mappings” (with B. ten Cate), *Proceedings of the 12th International Conference on Database Theory ICDT '09*, 2009, pp. 63-72. 2009.
- “The connectivity of Boolean satisfiability: computational and structural dichotomies” (with P. Gopalan, E. Maneva, and C.H. Papadimitriou), *SIAM J. of Computing*, vol. 38, no. 6, 2009, pp. 2330–2355; preliminary version in *Proceedings of 33rd International Colloquium on Automata, Languages and Programming* (ICALP 2006), LNCS 4051, Springer, 2006, pp. 346–357.
- “Structure identification of Boolean relations and plain bases for co-clones” (with N. Creignou and B. Zanuttini), *Journal of Computer and System Sciences*, 74, 2008, pp. 1003-1115.
- “Answering aggregate queries in data exchange” (with F. Afrati), *Proceedings of the Twenty-seventh ACM Symposium on Principles of Database Systems* (PODS 2008), 2008, pp. 129-138.
- “Towards a theory of schema-mapping optimization (with R. Fagin, A. Nash, and L. Popa), *Proc. of the Twenty-seventh ACM Symposium on Principles of Database Systems* (PODS 2008), pp. 33–42.
- “Interactive generation of integrated schema” (with L. Chiticariu and L. Popa), *Proceedings of the 28th ACM SIGMOD International Conference on Management of Data* (SIGMOD 2008), 2008, pp. 833-846.
- “Paper and proposal reviews: is the process flawed?” (with H.F. Korth, Ph. A. Bernstein, M.F. Fernández, L. Gruenwald, K.S. McKinley, and M.T. Özsu), *SIGMOD Record*, 37 (3), 2008, pp. 36-39.
- “Quasi-inverses of schema mappings” (with R. Fagin, L. Popa, and W.-C. Tan), *ACM Transactions on Database Systems*, 33, (2), 2008. Invited paper from the *Twenty-sixth ACM Symposium on Principles of Database Systems* (PODS 2007).
- “Semi-automatic schema integration in Clio” (with L. Chiticariu, M.A. Hernández, and L. Popa), *Proceedings of the 33rd Very Large Databases Conference* (VLDB 2007), demo track, pp. 1326-1329.
- “Reflections on Finite Model Theory”, Invited paper, *Proceedings of the Twenty-second Annual IEEE Symposium on Logic in Computer Science*, (LICS 2007), pp. 257–269
- “Peer data exchange” (with A. Fuxman, R.J. Miller, and W.-C. Tan), *ACM Transactions on Database Systems*, 31 (4), December 2006, pp. 1454–1498. Invited paper from PODS 2005; preliminary version in *Proceedings of the Twenty-Fourth ACM Symposium on Principles of Database Systems* (PODS 2005), pp. 160–171.
- “The containment problem for *real* conjunctive queries with inequalities” (with T.S. Jayram and E. Vee), *Proceedings of the Twenty-fifth ACM Symposium on Principles of Database Systems* (PODS 2006), pp. 80–89, 2006.
- “The complexity of data exchange” (with J. Panttaja and W.-C. Tan), *Proceedings of the Twenty-fifth ACM Symposium on Principles of Database Systems* (PODS 2006), pp. 30–39, 2006.
- “On preservations under homomorphisms and unions of conjunctive queries” (with A. Atserias and A. Dawar), *Journal of the Association for Computing Machinery*, 53 (2), March 2006, pp. 208-237. Invited paper from PODS 2004; earlier version in *Proceedings of the Twenty-Third ACM Symposium on Principles of Database Systems* (PODS 2004), pp. 319–329.

- “Composing schema mappings: second-order dependencies to the rescue” (with R. Fagin, L. Popa, and W.-C.Tan), *ACM Transactions on Database Systems*, 30 (4), December 2005, pp. 994–1055. Invited paper from PODS 2004; earlier version in *Proceedings of the Twenty-Third ACM Symposium on Principles of Database Systems* (PODS 2004), pp. 83-94.
- “Schema Mappings, Data Exchange, and Metadata Management”, Invited Paper, *Proceedings of the Twenty-Fourth ACM Symposium on Principles of Database Systems* (PODS 2005), pp. 61-75.
- “Data exchange: semantics and query answering” (with R. Fagin, R.J. Miller, and L. Popa), *Theoretical Computer Science*, 336, 2005, pp. 89-124. Special issues with selections from the 9th International Conference on Database Theory - ICDT 2003; preliminary version in *Proceedings of the 9th International Conference on Database Theory* (ICDT 2003), LNCS Series, Volume 2572, Springer, 2003, pp. 207–224.
- “Data exchange: getting to the core” (with R. Fagin and L. Popa), *ACM Transactions on Database Systems*, 30 (1), March 2005, pp. 174–210. Invited paper from PODS 2003; earlier version in *Proceedings of the Twenty-Second ACM Symposium on Principles of Database Systems* (PODS 2003), pp. 90–101.
- “Efficient implementation of large-scale, multi-structural databases” (with R. Fagin, R. Kumar, J. Novak, D. Sivakumar, and A. Tomkins), *Proceedings of the 2005 Conference on Very Large Databases* (VLDB 2005), pp. 958–969.
- “Exchange, integration, and consistency of data: Report on the ARISE/NISR Workshop” (with L.E. Bertossi, J. Chomicki, P. Godfrey, A. Thomo, and C. Zuzarte), *SIGMOD Record*, 34 (7), 2005, pp. 87–90.
- “Subtractive reductions and complete problems for counting complexity classes” (with A. Durand and M. Hermann), *Theoretical Computer Science*, 340, 2005, pp. 496-513. Invited paper from MFCS 2000; preliminary version in *Proceedings of 25th International Symposium on Foundations of Computer Science* (MFCS 2000), LNCS 1893, Springer, 2000, pp. 323–332.
- “Existential second-order logic over graphs: charting the tractability frontier” (with T. Schwentick and G. Gottlob), *Journal of the Association for Computing Machinery*, Volume 51, Number 2, 2004, pp. 312–362 (preliminary version in: *Proceedings of 41st Annual IEEE Symposium on Foundations of Computer Science* (FOCS 2000), pp. 664–674, October 2000.)
- “A dichotomy in the complexity of propositional circumscription” (with L.M. Kirousis), *Theory of Computing Systems*, 37 (6), pp. 695–715, 2004. Preliminary version in *Proceedings of the Sixteenth Annual IEEE Symposium on Logic in Computer Science* (LICS 2001), pp. 71–80, June 2001.
- “On the complexity of existential pebble games” (with J. Panttaja), *Proceedings of Computer Science Logic CSL 2003*, Lecture Notes in Computer Science 2803, Springer 2003, pp. 314–329.
- “Constraint satisfaction, databases, and logic”, Invited paper, *Proceedings of the Eighteenth International Joint Conference on Artificial Intelligence* (IJCAI 2003), pp. 1587–1595.
- “Phase transitions of bounded satisfiability problems” (with D. D. Bailey), *Proceedings of the Eighteenth International Joint Conference on Artificial Intelligence* (IJCAI 2003), pp. 1187–1193.
- “The complexity of minimal satisfiability problems” (with L.M. Kirousis), *Information and Computation*, Volume 187, Number 1, pp. 20-39, 2003. Preliminary version in *Proceedings of 18th International Symposium on Theoretical Aspects of Computer Science* (STACS 2001), Lecture Notes in Computer Science, vol. 2010, pages 407–418, 2001.

- “Constraint satisfaction, bounded treewidth, and finite-variable logics” (with M.Y. Vardi and V. Dalmau), *Proceedings of the Eighth International Conference on Principles and Practice of Constraint Programming* (CP 2002), Lecture Notes in Computer Science Series, Vol. 2470, Springer, 2002, pp. 311–326.
- “Comparing phase transitions and peak cost in PP-complete satisfiability problems” (with D.D. Bailey and V. Dalmau), *Proceedings of the Eighteenth Conference on Artificial Intelligence* (AAAI ’02), AAAI Press/The MIT Press, 2002, pp. 620–626. Invited for presentation in a plenary session of AAAI ’02.
- “In search of a phase transition in the AC-matching problem” (with T. Raffill), *Proceedings of the Seventh International Conference on Principles and Practice of Constraint Programming* (CP 2001), Lecture Notes in Computer Science Series, Vol. 2239, Springer, 2001, pp. 433–450.
- “On the complexity of model checking and inference in minimal models” (with L.M. Kirousis), Invited Paper, *Proceedings of the 6th International Conference on Logic Programming and Nonmonotonic Reasoning* (LPNMR ’01), Lecture Notes in Artificial Intelligence Series, Vol. 2173, Springer, 2001, pp. 42–53.
- “Phase transitions of PP-complete satisfiability problems” (with D.D. Bailey and V. Dalmau), *Proceedings of the Seventeenth International Joint Conference on Artificial Intelligence* (IJCAI 2001), pages 183–189. Preliminary report in: *Proceedings of the Workshop on Theory and Applications of Satisfiability Testing - SAT 2001*, pp. 144–150. Full version invited to a special issue of *Discrete Applied Mathematics*.
- “On the unusual effectiveness of logic in computer science” (with J.Y. Halpern, R. Harper, N. Immerman, M.Y. Vardi, V. Vianu), *Bulletin of Symbolic Logic*, 7:2(2001), pp. 213–236.
- “0-1 Laws for fragments of existential second-order logic: a survey” (with M.Y. Vardi), Invited Paper, *Proceedings of 25th International Symposium on Foundations of Computer Science* (MFCS 2000), Lecture Notes in Computer Science, Vol. 1893, Springer-Verlag, 2000, pp. 84–98.
- “A game-theoretic approach to constraint satisfaction” (with M.Y. Vardi), *Proceedings of the Seventeenth National Conference on Artificial Intelligence* (AAAI 2000), AAAI Press/The MIT Press, 2000, pp. 175–181.
- “Conjunctive-query containment and constraint satisfaction” (with M.Y. Vardi), *Journal of Computer and System Sciences*, 61, 2000, pp. 302–332. Special issue with selections from the 17th ACM Symposium on Principles of Database Systems - PODS ’98; preliminary version in *Proceedings of the Seventeenth ACM Symposium on Principles of Database Systems* (PODS ’98), Seattle, Washington, 1998, pp. 205–213.
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