

# CURRICULUM VITAE MARCELO ARENAS

Associate Professor, Department of Computer Science  
Pontificia Universidad Católica de Chile  
Phone: 56 2 3545821  
Email: marenas@ing.puc.cl  
Http: www.ing.puc.cl/~marenas

## RESEARCH INTERESTS

- Database systems: relational databases, semistructured data, XML.
- Semantic Web.
- Finite model theory.
- Formal verification.
- Knowledge representation.

## EDUCATION

- Ph.D. in Computer Science. University of Toronto, Canada. September 2005. Thesis: “Design Principles for XML Data”.
- M.Sc. in Computer Science. Pontificia Universidad Católica de Chile, Chile. July 1998. Thesis: “Dynamic and Consistency Issues in Databases” (in Spanish).
- Industrial Engineer specializing in Computers (High Honours). Pontificia Universidad Católica de Chile, Chile. July 1998.
- B.A. in Engineering Science (High Honours). Pontificia Universidad Católica de Chile, Chile. March 1998.
- B.A. in Mathematics (High Honours). Pontificia Universidad Católica de Chile, Chile. October 1997

## PUBLICATIONS

### Refereed journal papers

- [1] Marcelo Arenas, Jorge Pérez, Juan Reutter and Cristian Riveros. “*The Language of Plain SO-tgds: Composition, Inversion and Structural Properties*”. To appear in Journal of Computer and System Sciences.
- [2] Marcelo Arenas, Jorge Pérez, Juan Reutter and Cristian Riveros. “*Query Language based Inverses of Schema Mappings: Semantics, Computation, and Closure Properties*”. To appear in The VLDB Journal.
- [3] Marcelo Arenas, Ronald Fagin and Alan Nash. “*Composition with Target Constraints*”. Logical Methods in Computer Science 7(3), Article 13 (38 pages), 2011.
- [4] Marcelo Arenas, Pablo Barceló and Leonid Libkin. “*Regular Languages of Nested Words: Fixed Points, Automata, and Synchronization*”. Theory of Computing Systems 49(3):639–670, 2011.
- [5] Marcelo Arenas, Pablo Barceló and Juan Reutter. “*Query Languages for Data Exchange: Beyond Unions of Conjunctive Queries*”. Theory of Computing Systems 49(2):489–564, 2011.
- [6] Jorge Pérez, Marcelo Arenas and Claudio Gutierrez. “*nSPARQL: A navigational language for RDF*”. Journal of Web Semantics 8(4):255–270, 2010.
- [7] Marcelo Arenas, Jorge Pérez and Cristian Riveros. “*The Recovery of a Schema Mapping: Bringing Exchanged Data Back*”. ACM Transactions on Databases Systems 34(4), Article 22 (47 pages), 2009.

- [8] Marcelo Arenas, Jorge Pérez, Juan Reutter and Cristian Riveros. “*Composition and Inversion of Schema Mappings*”. SIGMOD Record 38(3):17–28, 2009.
- [9] Jorge Pérez, Marcelo Arenas and Claudio Gutierrez. “*Semantics and Complexity of SPARQL*”. ACM Transactions on Database Systems 34(3), Article 16 (45 pages), 2009.
- [10] Rajeev Alur, Marcelo Arenas, Pablo Barcelo, Kousha Etessami, Neil Immerman and Leonid Libkin. “*First-Order and Temporal Logics for Nested Words*”. Logical Methods in Computer Science, 4(4:11):1–44, 2008.
- [11] Marcelo Arenas, Wenfei Fan and Leonid Libkin. “*On the Complexity of Verifying Consistency of XML Specifications*”. SIAM Journal on Computing, 38(3):841–880, 2008.
- [12] Marcelo Arenas and Leonid Libkin. “*XML Data Exchange: Consistency and Query Answering*”. Journal of the ACM, 55(2), Article 7 (72 pages), 2008.
- [13] Marcelo Arenas, Pablo Barceló and Leonid Libkin. “*Game-based Notions of Locality over Finite Models*”. Annals of Pure and Applied Logic, 152(1-3):3–30, 2008.
- [14] Marcelo Arenas. “*Normalization Theory for XML*”. SIGMOD Record, 35(4): 57–64, 2006.
- [15] Marcelo Arenas and Leonid Libkin. “*An Information-Theoretic Approach to Normal Forms for Relational and XML Data*”. Journal of the ACM, 52(2):246–283, 2005.
- [16] Marcelo Arenas and Leonid Libkin. “*A Normal Form for XML Documents*”. ACM Transactions on Databases Systems (TODS), 29(1):195–232, 2004.
- [17] Marcelo Arenas, Leopoldo Bertossi and Jan Chomicki. “*Answer Sets for Consistent Query Answering in Inconsistent Databases*”. Theory and Practice of Logic Programming, 3(4+5):393–424, 2003.
- [18] Marcelo Arenas, Leopoldo Bertossi, Jan Chomicki, Xin He, Vijay Raghavan and Jeremy Spinrad. “*Scalar Aggregation in Inconsistent Databases*”. Theoretical Computer Science, 296(3):405–434, 2003.
- [19] Marcelo Arenas, Vasiliki Kantere, Anastasios Kementsietsidis, Iluju Kiringa, Renée J. Miller and John Mylopoulos. “*The Hyperion Project: From Data Integration to Data Coordination*”. SIGMOD Record 32(3):53–58, 2003.
- [20] Marcelo Arenas and Leopoldo Bertossi. “*Hypothetical Temporal Queries in Databases*”. Journal of Intelligent Information Systems, 19(2):231–259, 2002.
- [21] Leopoldo Bertossi, Marcelo Arenas and Cristian Ferretti. “*SCDBR: An Automated Reasoner for Specifications of Database Updates*”. Journal of Intelligent Information Systems, 10(3):253–280, 1998.

## Books

- [22] Marcelo Arenas, Pablo Barceló, Leonid Libkin and Filip Murlak. “*Relational and XML Data Exchange*”. Morgan & Claypool, 2010.

## Book chapters

- [23] Marcelo Arenas, Pablo Barceló and Juan Reutter. “*Datalog as a Query Language for Data Exchange Systems*”. In Datalog 2010, O. de Moor, G. Gottlob, T. Furche and A. Jon Sellers, editors, pages 302–320, Springer, 2010.
- [24] Marcelo Arenas. “*XML Integrity Constraints*”. In Encyclopedia of Database Systems, L. Liu and M. T. Özsu, editors, pages 3592–3597, Springer, 2009.
- [25] Marcelo Arenas. “*Normal Forms and Normalization*”. In Encyclopedia of Database Systems, L. Liu and M. T. Özsu, editors, pages 1917–1920, Springer, 2009.  
 Marcelo Arenas. Short entries in the Encyclopedia of Database Systems on normal forms: “*Second Normal Form (2NF)*” (page 2522), “*Third Normal Form*” (pages 3087–3088), “*Boyce-Codd Normal Form*” (pages 264–265) and “*Fourth Normal Form*” (pages 1166–1167).
- [26] Marcelo Arenas, Claudio Gutierrez and Jorge Pérez. “*On the Semantics of SPARQL*”. In Semantic Web Information Management: a model based perspective, R. de Virgilio, F. Giunchiglia and L. Tanca, editors, pages 281–307, Springer, 2009.
- [27] Marcelo Arenas, Claudio Gutierrez and Jorge Pérez. “*Foundations of RDF Databases*”. In Reasoning Web: Semantic technologies for information systems - 5th International Summer School, S. Tessaris and E. Franconi, editors, volume 5689 of Lecture Notes in Computer Science, pages 158–204, Springer, 2009.

- [28] Marcelo Arenas, Wenfei Fan and Leonid Libkin. “*Consistency of XML Specifications*”. In Inconsistency Tolerance, L. Bertossi, A. Hunter and T. Schaub, editors, volume 3300 of Lecture Notes in Computer Science (State-of-the-Art series), pages 15–41, Springer, 2005.
- [29] Marcelo Arenas and Leopoldo Bertossi. “*The Dynamics of Database Views*”. In Transactions and Change in Logic Databases, H. Decker, B. Freitag, M. Kifer, and A. Voronkov, editors, volume 1472 of Lecture Notes in Computer Science, pages 197–226, Springer, 1998.

### Edited special issues (for refereed journals)

- [30] Marcelo Arenas. Special issue on database theory. *Journal of Computer and System Sciences* 77(3), 2011.
- [31] Marcelo Arenas and Michael I. Schwartzbach. Special issue on selected papers from the 11<sup>th</sup> International Symposium on Database Programming Languages (DBPL 2007). *Information Systems* 34(7), 2009.

### Edited conference proceedings

- [32] Marcelo Arenas and Benjamin Bustos. Proceedings of the 28<sup>th</sup> International Conference of the Chilean Computer Science Society. IEEE Computer Society, 2009.
- [33] Marcelo Arenas and Michael I. Schwartzbach. Proceedings of the 11<sup>th</sup> International Symposium on Database Programming Languages (DBPL 2007). Springer, 2007.

### Refereed conference papers

- [34] Marcelo Arenas, Sebastián Conca and Jorge Pérez. “*Counting beyond a Yottabyte, or how SPARQL 1.1 Property Paths will prevent adoption of the standard*”. In Proceedings of the 21<sup>st</sup> International Conference on World Wide Web (WWW 2012), Lyon, France, pages 629–638, 2012.
- [35] Juan F. Sequeda, Marcelo Arenas and Daniel Miranker. “*On Directly Mapping Relational Databases to RDF and OWL*”. In Proceedings of the 21<sup>st</sup> International Conference on World Wide Web (WWW 2012), Lyon, France, pages 649–658, 2012.
- [36] Alejandro Mallea, Marcelo Arenas, Aidan Hogan and Axel Polleres. “*On Blank Nodes*”. In Proceedings of the 10<sup>th</sup> International Semantic Web Conference (ISWC 2011), Bonn, Germany, pages 421–437, 2011.
- [37] Marcelo Arenas, Jorge Pérez and Juan Reutter. “*Data Exchange beyond Complete Data*”. In Proceedings of the 30<sup>th</sup> ACM SIGMOD-SIGACT-SIGART Symposium on Principles of Database Systems (PODS 2011), Athens, Greece, pages 83–94, 2011.  
**Note:** This article was awarded the best paper award in this conference, and it was invited to a special issue of the *Journal of the ACM* for selected papers of PODS 2011.
- [38] Marcelo Arenas and Jorge Pérez. “*Querying Semantic Web Data with SPARQL*”. In Proceedings of the 30<sup>th</sup> ACM SIGMOD-SIGACT-SIGART Symposium on Principles of Database Systems (PODS 2011), Athens, Greece, pages 305–316, 2011.
- [39] Carlos Buil-Aranda, Marcelo Arenas and Oscar Corcho. “*Semantics and Optimization of the SPARQL 1.1 Federation Extension*”. In Proceedings of the 8<sup>th</sup> Extended Semantic Web Conference (ESWC 2011), Heraklion, Greece, pages 1–15, 2011.  
**Note:** This article was awarded the best paper award in this conference.
- [40] Marcelo Arenas, Jorge Pérez, Juan Reutter and Cristian Riveros. “*Foundations of Schema Mapping Management*”. In Proceedings of the 29<sup>th</sup> ACM SIGMOD-SIGACT-SIGART Symposium on Principles of Database Systems (PODS 2010), Indianapolis, IN, USA, pages 227–238, 2010.
- [41] Marcelo Arenas, Ronald Fagin and Alan Nash. “*Composition with Target Constraints*”. In Proceedings of the 13<sup>th</sup> International Conference on Database Theory (ICDT 2010), Lausanne, Switzerland, pages 129–142, 2010.  
**Note:** This article was awarded the best paper award in this conference, and it was invited to a special issue of *Logical Methods in Computer Science* for selected papers of ICDT 2010.
- [42] Marcelo Arenas, Jorge Pérez, Juan Reutter and Cristian Riveros. “*Inverting Schema Mappings: Bridging the Gap between Theory and Practice*”. In Proceedings of the 35<sup>th</sup> International Conference on Very Large Data Bases (VLDL 2009), Lyon, France, pages 1018–1029, 2009.

- [43] Marcelo Arenas, Pablo Barceló and Juan Reutter. “*Query Languages for Data Exchange: Beyond Unions of Conjunctive Queries*”. In Proceedings of the 12<sup>th</sup> International Conference on Database Theory (ICDT 2009), Saint-Petersburg, Russia, pages 73–83, 2009.  
**Note:** Invited to a special issue of Theory of Computing Systems for selected papers of ICDT 2009.
- [44] Jorge Pérez, Marcelo Arenas and Claudio Gutierrez. “*nSPARQL: A Navigational Language for RDF*”. In Proceedings of the 7<sup>th</sup> International Semantic Web Conference (ISWC 2008), Karlsruhe, Germany, volume 5318 of Lecture Notes Computer Science, pages 66–81, 2008.
- [45] Marcelo Arenas, Jorge Pérez and Cristian Riveros. “*The Recovery of a Schema Mapping: Bringing Exchanged Data Back*”. In Proceedings of the 27<sup>th</sup> ACM SIGMOD-SIGACT-SIGART Symposium on Principles of Database Systems (PODS 2008), Vancouver, Canada, pages 13–22, 2008.  
**Note:** Invited to a special issue of the ACM Transactions on Databases Systems for selected papers of PODS 2008.
- [46] Rajeev Alur, Marcelo Arenas, Pablo Barceló, Kousha Etessami, Neil Immerman and Leonid Libkin. “*First-Order and Temporal Logics for Nested Words*”. In Proceedings of the 22<sup>nd</sup> Annual IEEE Symposium on Logic in Computer Science (LICS 2007), Wroclaw, Poland, pages 151–160, 2007.  
**Note:** Invited to a special issue of Logical Methods in Computer Science for selected papers of LICS 2007.
- [47] Marcelo Arenas, Pablo Barceló and Leonid Libkin. “*Regular Languages of Nested Words: Fixed Points, Automata, and Synchronization*”. In Proceedings of the 34<sup>th</sup> International Colloquium on Automata, Languages and Programming (ICALP 2007), Wroclaw, Poland, volume 4596 of Lecture Notes in Computer Science, pages 888–900, 2007.
- [48] Marcelo Arenas, Pablo Barceló and Leonid Libkin. “*Combining Temporal Logics for Querying XML Documents*”. In Proceedings of the 11<sup>th</sup> International Conference on Database Theory (ICDT 2007), Barcelona, Spain, volume 4353 of Lecture Notes in Computer Science, pages 359–373, 2007.
- [49] Jorge Pérez, Marcelo Arenas and Claudio Gutierrez. “*Semantics and Complexity of SPARQL*”. In Proceedings of the 5<sup>th</sup> International Semantic Web Conference (ISWC 2006), Athens, GA, USA, volume 4273 of Lecture Notes in Computer Science, pages 30–43, 2006.
- [50] Marcelo Arenas and Leonid Libkin. “*XML Data Exchange: Consistency and Query Answering*”. In Proceedings of the 24<sup>th</sup> ACM SIGMOD-SIGACT-SIGART Symposium on Principles of Database Systems (PODS 2005), Baltimore, MD, USA, pages 13–24, 2005.  
**Note:** This article was awarded the best paper award in this conference and it was invited to a special issue of the Journal of the ACM for selected papers of PODS 2005.
- [51] Marcelo Arenas, Pablo Barceló and Leonid Libkin. “*Game-based Notions of Locality over Finite Models*”. In Proceedings of the 18<sup>th</sup> Annual Conference of the European Association for Computer Science Logic (CSL 2004), Karpacz, Poland, volume 3210 of Lecture Notes in Computer Science, pages 175–189, Springer, 2004.
- [52] Anastasios Kementsietsidis and Marcelo Arenas. “*Data Sharing Through Query Translation in Autonomous Sources*”. In Proceedings of the 30<sup>th</sup> International Conference on Very Large Data Bases (VLDB 2004), Toronto, Canada, pages 468–479, 2004.
- [53] Marcelo Arenas, Pablo Barceló, Ronald Fagin and Leonid Libkin. “*Locally Consistent Transformations and Query Answering in Data Exchange*”. In Proceedings of the 23<sup>rd</sup> ACM SIGACT-SIGMOD-SIGART Symposium on Principles of Database Systems (PODS 2004), Paris, France, pages 229–240, 2004.
- [54] Denilson Barbosa, Alberto Mendelzon, Leonid Libkin, Laurent Mignet and Marcelo Arenas. “*Efficient Incremental Validation of XML Documents*”. In Proceedings of the 20<sup>th</sup> International Conference on Data Engineering (ICDE 2004), Boston, MA, USA, pages 671–682, 2004.
- [55] Marcelo Arenas and Leonid Libkin. “*An Information-Theoretic Approach to Normal Forms for Relational and XML Data*”. In Proceedings of the 22<sup>nd</sup> ACM SIGACT-SIGMOD-SIGART Symposium on Principles of Database Systems (PODS 2003), San Diego, CA, USA, pages 15–26, 2003.  
**Note:** This article was awarded the best paper award in this conference and it was invited to a special issue of the Journal of the ACM for selected papers of PODS 2003.
- [56] Anastasios Kementsietsidis, Marcelo Arenas and Renée J. Miller. “*Mapping Data in Peer-to-Peer Systems: Semantics and Algorithmic Issues*”. In Proceedings of the SIGMOD International Conference on Management of Data (SIGMOD 2003), San Diego, CA, USA, pages 325–336, 2003.  
**Note:** Also presented in the 2<sup>nd</sup> Hellenic Data Management Symposium (HDMS 2003), Athens, Greece, 2003.

- [57] Marcelo Arenas, Wenfei Fan and Leonid Libkin. “*On Verifying Consistency of XML Specifications*”. In Proceedings of the 21<sup>st</sup> ACM SIGACT-SIGMOD-SIGART Symposium on Principles of Database Systems (PODS 2002), Madison, WI, USA, pages 259–270, 2002.
- [58] Marcelo Arenas and Leonid Libkin. “*A Normal Form for XML Documents*”. In Proceedings of the 21<sup>st</sup> ACM SIGACT-SIGMOD-SIGART Symposium on Principles of Database Systems (PODS 2002), Madison, WI, USA, pages 85–96, 2002.  
**Note:** Invited to a special issue of the ACM Transactions on Databases Systems for selected papers of SIGMOD/PODS 2002.
- [59] Marcelo Arenas, Wenfei Fan and Leonid Libkin. “*What’s Hard about XML Schema Constraints?*”. Proceedings of the 13<sup>th</sup> International Conference on Database and Expert Systems Applications (DEXA 2002), Aix en Provence, France, volume 2453 of Lecture Notes in Computer Science, pages 269–278, Springer, 2002.
- [60] Marcelo Arenas, Leopoldo Bertossi and Jan Chomicki. “*Scalar Aggregation in FD-Inconsistent Databases*”. In Proceedings of the 8<sup>th</sup> International Conference on Database Theory (ICDT 2001), London, UK, volume 1973 of Lecture Notes in Computer Science, pages 39–53. Springer, 2001.  
**Note:** Invited to a special issue of Theoretical Computer Science for selected papers of ICDT 2001.
- [61] Marcelo Arenas, Leopoldo Bertossi and Jan Chomicki. “*Specifying and Querying Database Repairs using Logic Programs with Exceptions*”. In Proceedings of the 4<sup>th</sup> International Conference on Flexible Query Answering Systems (FQAS 2000), Warsaw, Poland, pages 27–41. Springer, 2000.
- [62] Marcelo Arenas, Leopoldo Bertossi and Michael Kifer. “*Applications of Annotated Predicate Calculus to Querying Inconsistent Databases*”. In Proceedings of the 6<sup>th</sup> International Conference on Rules and Objects in Databases (DOOD 2000), London, UK, volume 1861 of Lecture Notes in Artificial Intelligence, pages 926–941. Springer, 2000.
- [63] Marcelo Arenas, Leopoldo Bertossi, Loreto Bravo, Laura Gallardo and Achim Sydow. “*Environmental Information System for Analysis and Forecast of Air Pollution (Application to Santiago de Chile)*”. In Proceedings of the International Conference on Environmental Modeling and Simulation (ICEMS 2000), San Diego, CA, USA, pages 71–75, 2000.
- [64] Marcelo Arenas, Leopoldo Bertossi and Jan Chomicki. “*Consistent Query Answers in Inconsistent Databases*”. In Proceedings of the 18<sup>th</sup> ACM SIGACT-SIGMOD-SIGART Symposium on Principles of Database Systems (PODS 1999), Philadelphia, PA, USA, pages 68–79, 1999.
- [65] Marcelo Arenas, Leopoldo Bertossi and Jan Chomicki. “*Query Evaluation in Almost Consistent Databases using Residues*”. In Proceedings of the 18<sup>th</sup> International Conference of the Chilean Computer Science Society (SCCC 1998), Antofagasta, Chile, pages 8–14. IEEE CS Press, 1998.

## Refereed journal and conference short papers

- [66] Marcelo Arenas, Elena Botoeva, Diego Calvanese, Vladislav Ryzhikov and Evgeny Sherkhonov. “*Exchanging Description Logic Knowledge Bases*”. To appear in Proceedings of the 13<sup>th</sup> International Conference on Principles of Knowledge Representation and Reasoning (KR 2012). Rome, Italy, 2012.
- [67] Marcelo Arenas, Claudio Gutierrez and Jorge Pérez. “*Some Remarks on the Paper semQA: SPARQL with Idempotent Disjunction*”. IEEE Transactions on Knowledge and Data Engineering 23(4):638–639, 2011.
- [68] Anastasios Kementsietsidis, Marcelo Arenas and Renée J. Miller. “*Managing Data Mappings in the Hyperion Project*”. In Proceedings of the 19<sup>th</sup> International Conference on Data Engineering (ICDE 2003). Bangalore, India, pages 732–734, 2003.

## Refereed workshop papers

- [69] Marcelo Arenas, Elena Botoeva, Diego Calvanese, Vladislav Ryzhikov and Evgeny Sherkhonov. “*Representability in DL-Lite<sub>R</sub> Knowledge Base Exchange*”. To appear in Proceedings of the 25<sup>th</sup> International Workshop on Description Logics (DL 2012), Rome, Italy, 2012.
- [70] Marcelo Arenas, Elena Botoeva and Diego Calvanese. “*Knowledge Base Exchange*”. In Proceedings of the 24<sup>th</sup> International Workshop on Description Logics (DL 2011), Barcelona, Spain, 2011.

- [71] Marcelo Arenas, Mariano Consens and Alejandro Mallea. “*Revisiting Blank Nodes in RDF to Avoid the Semantic Mismatch with SPARQL*”. In W3C Workshop RDF Next Steps. Stanford, CA, USA, 2010.
- [72] Marcelo Arenas and Leopoldo Bertossi. “*On the Decidability of Consistent Query Answering*”. In Proceedings of the 4<sup>th</sup> Alberto Mendelzon Workshop on Foundations of Data Management (AMW 2010). Buenos Aires, Argentina, 2010.
- [73] Marcelo Arenas, Claudio Gutierrez, and Jorge Pérez. “*An extension of SPARQL for RDFS*”. In Proceedings of the Joint workshop on Semantic Web, Ontologies, and Databases (SWBD-ODDIS 2007). Vienna, Austria, volume 5005 of Lecture Notes in Computer Science (invited paper).
- [74] Vasiliki Kantere, Iluju Kiringa, John Mylopoulos, Anastasios Kementsietsidis and Marcelo Arenas. “*Coordinating Peer Databases Using ECA Rules*”. In Proceedings of the International Workshop on Databases, Information Systems and Peer-to-Peer Computing (DBISP2P 2003). Berlin, Germany, volume 2944 of Lecture Notes in Computer Science, pages 108–122. Springer, 2003.
- [75] Marcelo Arenas and Leopoldo Bertossi. “*Hypothetical Temporal Reasoning with History Encoding (Extended Abstract)*”. In Proceedings of Workshop on Reasoning about Actions: Foundations and Applications (part of ESSLLI 1998), Saarbrueken, Germany, 1998.
- [76] Marcelo Arenas and Leopoldo Bertossi. “*Hypothetical Temporal Queries in Databases*”. In Proceedings of the 5<sup>th</sup> International Workshop on Knowledge Representation Meets Databases (KRDB 1998): Innovative Application Programming and Query Interfaces, Seattle, WA, USA, pages 4.1–4.8, 1998.

## Refereed conference posters

- [77] Juan F. Sequeda, Marcelo Arenas and Daniel Miranker. “*A Completely Automatic Direct Mapping of Relational Databases to RDF and OWL*”. Poster, 10<sup>th</sup> International Semantic Web Conference (ISWC 2011), Bonn, Germany, 2011.
- [78] Marcelo Arenas, Pablo Barceló and Leonid Libkin. “*Game-based Notions of Locality*”. Short presentation, 18<sup>th</sup> Annual IEEE Symposium on Logic in Computer Science (LICS 2003), Ottawa, Canada, 2003.

## World Wide Web Consortium (W3C) documents

- [79] Marcelo Arenas, Alexandre Bertails, Eric Prud'hommeaux and Juan Sequeda. “*A Direct Mapping of Relational Data to RDF*”, W3C Candidate Recommendation 23 February 2012, <http://www.w3.org/TR/rdb-direct-mapping/>.

# ACADEMIC HONORS

## Awards

- Google Best Paper Award, 21<sup>st</sup> International Conference on World Wide Web (WWW 2012), Lyon, France, 2012.
- Best Paper Award, 30<sup>th</sup> ACM SIGMOD-SIGACT-SIGART Symposium on Principles of Database Systems (PODS 2011), Athens, Greece, 2011.
- Best Paper Award, 8<sup>th</sup> Extended Semantic Web Conference (ESWC 2011), Heraklion, Greece, 2011.
- Best Paper Award, 13<sup>th</sup> International Conference on Database Theory (ICDT 2010), Lausanne, Switzerland, 2010.
- College of Engineering Research Award, Pontificia Universidad Católica de Chile, 2010.
- 2008 Outstanding Teaching Award, Pontificia Universidad Católica de Chile.
- College of Engineering Research Award, Pontificia Universidad Católica de Chile, 2007.
- ACM-SIGMOD Dissertation Award Honorable Mention for Ph.D dissertation “*Design Principles for XML Data*”, Chicago, IL, USA, 2006.
- Best Research Paper Award, 5<sup>th</sup> International Semantic Web Conference (ISWC 2006), Athens, GA, USA, 2006.
- College of Engineering Teaching Award, Pontificia Universidad Católica de Chile, 2006.

- Best Paper Award, 24<sup>th</sup> ACM SIGMOD-SIGACT-SIGART Symposium on Principles of Database Systems (PODS 2005), Baltimore, MD, USA, 2005.
- Best Paper Award, 22<sup>nd</sup> ACM SIGACT-SIGMOD-SIGART Symposium on Principles of Database Systems (PODS 2003), San Diego, CA, USA, 2003.
- Best Student of Industrial Engineering in the Computer Science field, Class 1998, Pontificia Universidad Católica de Chile.

## **Fellowships and Scholarships**

- IBM Ph.D. Fellowship 2004-2005.
- Ontario Graduate Scholarship 2001-2004, Canada.
- Connaught Scholarship 2000-2001, University of Toronto, Canada.

# **STUDENT SUPERVISION**

## **Graduated PhD Students**

- Jorge Pérez. “Schema Mapping Management in Data Exchange Systems”. Pontificia Universidad Católica de Chile, May 2011.
- Sebastián Castillo. “Blocking Logics: A Class of Paraconsistent Logics, with Applications to the Theory of Computing and Discussion Groups”. Universidad de Chile, November 2007 (co-supervised with Renato Lewin).

## **In course PhD students**

- Martín Ugarte. Pontificia Universidad Católica de Chile.

## **Graduated Masters Students**

- Sebastián Conca. “*Semantics and Complexity of SPARQL 1.1 Property Paths*”. Pontificia Universidad Católica de Chile. March 2012.
- Juan Reutter. “*Extending Query Languages for Data Exchange*”. Pontificia Universidad Católica de Chile. March 2009.
- Cristian Riveros. “*Recovering Information in Data Exchange*”. Pontificia Universidad Católica de Chile. July 2008.

## **In course Masters Students**

- Gonzalo Díaz. Pontificia Universidad Católica de Chile.
- Gabriel Diéguez. Pontificia Universidad Católica de Chile.
- Andrés Letelier. Pontificia Universidad Católica de Chile.

## **In course Postdoctoral Students**

- Carlos Buil-Aranda. Pontificia Universidad Católica de Chile.

## FUNDING

### Grants (as principal investigator)

- FP7-PEOPLE-2009-IRSES Grant (# 247601) “*Net2 - Network for Enabling Networked Knowledge*”. July 2010 - June 2013. Amount: 354,000 EUR.  
Partners in this project: National U. of Ireland, Free U. of Bozen/Bolzano, Vienna U. of Technology, U. of Koblenz-Landau, Delft U. of Technology, U. of Chile, PUC-Rio, African Advanced Institute for Information & Communication Technology, U. of South Africa and Shanghai Jiao Tong U.
- FONDECYT Grant (# 1090565) “*SPARQL for RDF Data with RDFS Vocabulary and Blank Nodes: Semantics, Complexity and Implementation* “. March 2009 - March 2012. Amount: 83,000 USD.
- FONDECYT Grant (# 1070732) “*Metadata Management for Relational and XML Data Exchange Systems*”. March 2007 - March 2009. Amount: 32,000 USD.
- FONDECYT Grant (# 1050701) “*Data Exchange in Relational and XML Data*”. March 2005 - March 2007. Amount: 31,000 USD.

## PROFESSIONAL EXPERIENCE

- Invited Expert - RDB2RDF Working Group. The World Wide Web Consortium (W3C), 2009 - present.
- Associate Information Director - ACM Special Interest Group on Management Of Data (SIGMOD), 2005 - 2009.
- Associate professor, Department of Computer Science, Pontificia Universidad Católica de Chile, 2009 - Present.
- Assistant professor, Department of Computer Science, Pontificia Universidad Católica de Chile, 2005 - 2009.
- Summer intern at IBM Almaden Research Center, San Jose, CA, USA, July 2004 - September 2004.
- Full-time junior faculty member, Department of Computer Science, Pontificia Universidad Católica de Chile, August 1998 - August 2000.
- Guest researcher at German National Research Center for Information Technology, Institute for Computer Architecture and Software Technology (GMD-FIRST), Berlin, Germany, February 1999.
- Guest researcher at Laboratoire d’informatique de Marseille, Faculté des sciences de Luminy, Université de la Méditerranée, Marseille, France, January 1999.

## TEACHING EXPERIENCE

Courses taught at the Pontificia Universidad Católica de Chile:

- Introduction to Programming: 1’1999, 1’2000, 1’2006, 1’2007, 1’2008, 1’2009, 2’2009, 2’2010, 1’2011.
- Advanced Programming: 2’1998, 1’1999, 2’1999, 1’2000.
- Logic for Computer Science: 2’2005, 1’2008, 1’2010, 2’2011.
- Finite Model Theory: 2’2006, 2’2008, 2’2010.
- Computational Complexity: 1’2009, 1’2011.
- Advanced Topics in Database Systems: 1’2006 (Foundations of XML), 1’2007 (Data integration).
- Advanced Topics in Computer Science: 1’2007 (Model checking), 2’2011 (Theory of computing).
- Advanced Topics in Theory of Computing: 1’2012.

## PROFESSIONAL ACTIVITIES

### Program Chair

- 3<sup>rd</sup> Alberto Mendelzon International Workshop on Foundations of Data Management (AMW 2009). Arequipa, Peru, 2009 (co-chaired with Leopoldo Bertossi, Carleton U., Canada)

- 11<sup>th</sup> International Symposium on Database Programming Languages (DBPL 2007). Vienna, Austria, 2007 (co-chaired with Michael I. Schwartzbach, U. Aarhus, Denmark)
- Workshop on Emerging Research Opportunities in Web Data Management (EROW 2007). Barcelona, Spain, 2007 (co-chaired with Jan Hidders, U. of Antwerp, Belgium)

## Program Committee Member

### International conferences

- ACM SIGMOD International Conference on Management of Data (SIGMOD): 2012 (Scottsdale, AZ, USA), 2011 (Athens, Greece)
- ACM SIGMOD-SIGACT-SIGART Symposium on Principles of Database Systems (PODS): 2013 (New York, USA), 2010 (Indianapolis, IN, USA), 2008 (Vancouver, Canada), 2006 (Chicago, IL, USA)
- International Conference on Database Theory (ICDT): 2012 (Berlin, Germany), 2007 (Barcelona, Spain)
- Conference on Artificial Intelligence (AAAI): 2012 (Toronto, Canada)
- International Semantic Web Conference (ISWC): 2010 (Shanghai, China), 2008 (Karlsruhe, Germany)
- European Semantic Web Conference (ESWC): 2009 (Heraklion, Greece), 2008 (Tenerife, Spain)
- International Conference on Web Reasoning and Rule Systems (RR): 2011 (Galway, Ireland), 2010 (Bressanone, Italy), 2009 (Chantilly, VA, USA), 2008 (Karlsruhe, Germany)
- Workshop on Logic, Language, Information and Computation (WoLLIC): 2012 (Buenos Aires, Argentina)
- International Symposium on Mathematical Foundations of Computer Science (MFCS): 2009 (Novy Smokovec, High Tatras, Slovakia)
- Latin American Theoretical INformatics (LATIN): 2006 (Valdivia, Chile)
- ACM Conference on Information and Knowledge Management (CIKM): 2011 (Glasgow, Scotland), 2008 (Napa Valley, CA, USA), 2007 (Lisbon, Portugal)
- International Symposium on Foundations of Information and Knowledge Systems (FolKS): 2010 (Sofia, Bulgaria)
- International Symposium on Database Programming Languages (DBPL): 2005 (Trondheim, Norway)
- International Conference on Conceptual Modeling (ER): 2009 (Gramado, Brazil)
- Brazilian Symposium on Databases (SBBD): 2007 (João Pessoa, Brazil), 2006 (Florianopolis, Brazil)
- International Conference of the Chilean Computer Science Society (SCCC): 2005 (Valdivia, Chile)
- Workshop on Discovering Meaning On the Go in Large Heterogeneous Data (LHD): 2011 (Barcelona, Spain)
- International Workshop on Managing Data Throughout its Lifecycle (DaLi): 2011 (Hannover, Germany)
- Ph.D. Workshop on Innovative Database Research (IDAR): 2011 (Athens, Greece), 2010 (Indianapolis, IN, USA)
- International Workshop on Inconsistency and Incompleteness in Databases: 2006 (Munich, Germany)
- International Workshop on Logical Aspects and Applications of Integrity Constraints (LAAIC): 2006 (Krakow, Poland), 2005 (Copenhagen, Denmark)
- ACM International Workshop on Web Information and Data Management (WIDM): 2005 (Bremen, Germany)

### Chilean conferences

- Encuentro Chileno de Estudiantes de Postgrado (Ph.D. Workshop): 2008.
- Workshop Chileno de Bases de Datos (Chilean Workshop on Databases): 2007, 2004, 2003, 2002.
- Encuentro Chileno de Computación (Chilean Conference on Computing): 2002, 2001, 2000.

## SOME TALKS

- *“Paths in semantic search: A back and forth story”*. Invited talk at Dagstuhl seminar Semantic Data Management. Schloss Dagstuhl, Germany, April 2012.
- *“Data Exchange beyond Complete Data”*. Invited talk at Dagstuhl seminar Foundations of distributed data management. Schloss Dagstuhl, Germany, October 2011.

- “*Exchanging more than Complete Data*”. Invited talk at the 5<sup>th</sup> International Conference on Web Reasoning and Rule Systems (RR’11). Galway, Ireland, August 2011.
- “*Exchanging more than Complete Data*”. Invited talk at the 24<sup>th</sup> International Workshop on Description Logics (DL 2011), Barcelona, Spain, July 2011.
- “*Querying Semantic Web Data with SPARQL: State of the Art and Research Perspectives*”. Invited tutorial at the 30<sup>th</sup> ACM SIGMOD-SIGACT-SIGART Symposium on Principles of Database Systems (PODS 2011), Athens, Greece, June 2011.
- “*Data Exchange in the Relational and RDF Worlds*”. Invited talk at the 3<sup>th</sup> International Workshop on Semantic Web Information Management (SWIM 2011), Athens, Greece, June 2011.
- “*Schema Mapping Management in Data Exchange Systems*”. Invited tutorial at the V Alberto Mendelzon International Workshop on Foundations of Data Management (AMW 2011), Santiago, Chile, May 2011.
- “*Datalog as a Query Language for Data Exchange Systems*”. Datalog 2.0, Oxford University, UK, March 2010.
- “*Semantic Web: Query Languages for RDF and RDFS*”. Workshop on Emerging Topics in the Web, Santiago, Chile, November 2009.
- “*Foundations of RDF Databases*”. Invited tutorial at Reasoning Web: Semantic technologies for information systems - 5<sup>th</sup> International Summer School, Brixen-Bressanone, Italy, August 2009.
- “*The Recovery of a Schema Mapping*”. Symposium on XML, Logic and Automata, Grantown-on-Spey, Scotland, UK, July 2008.
- “*SPARQL over RDF, and its possible extensions to RDFS*”. Invited talk at the Joint SWDB & ODBIS workshop on Semantic Web, Ontologies, Databases (SWDB-ODDIS 2007), Vienna, Austria, September 2007.
- “*SPARQL - Where are we? Current state, theory and practice*”, with Claudio Gutierrez, Bijan Parsia, Jorge Pérez, Axel Polleres and Andy Seaborne. Tutorial given at the 4<sup>th</sup> European Semantic Web Conference (ESWC 2007), Innsbruck, Austria, June 2007.
- “*RDF and SPARQL: Two Basic Components of the Semantic Web*”. A talk given at The University of Edinburgh, Edinburgh, Scotland, UK, 2007.
- “*Locality of Queries and Transformations*”. Invited talk at the 4<sup>th</sup> IFIP International Conference on Theoretical Computer Science, Santiago, Chile, 2006.
- “*XML Data Exchange*”. 2<sup>nd</sup> International Workshop on Exchange and Integration of Data, Brixen-Bressanone, Italy, 2006.
- “*Locally Consistent Transformations and Query Answering in Data Exchange*”. A talk given at The Isaac Newton Institute, University of Cambridge, UK, 2006.
- “*XML Data Exchange: Consistency and Query Answering*”. Workshop on Web Information Retrieval, Santiago, Chile, 2005.
- “*XML Data Exchange: Consistency and Query Answering*”. 24<sup>th</sup> ACM SIGMOD-SIGACT-SIGART Symposium on Principles of Database Systems (PODS 2005), Baltimore, MD, USA, 2005.
- “*XML Data Exchange: Consistency and Query Answering*”. A talk given at The University of Edinburgh, Edinburgh, Scotland, UK, 2005.
- “*XML Data Exchange: Consistency and Query Answering*”. A talk given at Dagstuhl seminar Foundations of Semistructured Data, Wadern, Germany, 2005.
- “*Well-designed XML Data*”. A talk given at IBM Almaden Research Center, San Jose, CA, USA, 2004.
- “*Well-designed XML Data*”. A talk given at IBM T.J. Watson Research Center, Hawthorne, NY, USA, 2004.
- “*Locally Consistent Transformations and Query Answering in Data Exchange*”. A talk given at The State University of New York, Buffalo, NY, USA, 2004.
- “*An Information-Theoretic Approach to Normal Forms for Relational and XML Data*”. 22<sup>nd</sup> ACM SIGACT-SIGMOD-SIGART Symposium on Principles of Database Systems (PODS 2003), San Diego, CA, USA, 2003.
- “*What’s Hard about XML Schema Constraints?*”. 13<sup>th</sup> International Conference on Database and Expert Systems Applications (DEXA 2002), Aix en Provence, France, 2002.
- “*A Normal Form for XML Documents*”. 21<sup>st</sup> ACM SIGACT-SIGMOD-SIGART Symposium on Principles of Database Systems (PODS 2002), Madison, WI, USA, 2002.
- “*A Normal Form for XML Documents*”. A talk given at Carleton University, Ottawa, Canada, February 2002.

## **SCIENTIFIC AND PROFESSIONAL SOCIETIES**

- Association for Computing Machinery (ACM)