

20th International Conference on Database Theory

ICDT 2017, March 21–24, 2017, Venice, Italy

Edited by

Michael Benedikt

Giorgio Orsi



LIPICs

Editors

Michael Benedikt	Giorgio Orsi
Department of Computer Science	Meltwater, UK
University of Oxford, UK	
michael.benedikt@cs.ox.ac.uk	giorgio.orsi@meltwater.com

ACM Classification 1998

H.2 Database Management, H.2.1 Normal Forms, H.2.2 Schema and Subschema, H.2.3 Query Languages, H.2.4 [Systems] Query Processing, Relational Databases, Distributed Databases, H.2.5 Heterogeneous Databases, H.3.5 Online Information Services, H.1 [Miscellaneous] Privacy, H.4.1 [Office Automation] Workflow Management; B.4.4 [Performance Analysis and Design Aids] Formal Models, Verification, F.1.3 Complexity Measures and Classes, F.4.1 [Mathematical Logic] Computational Logic, Model Theory, G.2.2 [Graph Theory] Hypergraphs

ISBN 978-3-95977-024-8

Published online and open access by

Schloss Dagstuhl – Leibniz-Zentrum für Informatik GmbH, Dagstuhl Publishing, Saarbrücken/Wadern, Germany. Online available at <http://www.dagstuhl.de/dagpub/978-3-95977-024-8>.

Publication date

March, 2017

Bibliographic information published by the Deutsche Nationalbibliothek

The Deutsche Nationalbibliothek lists this publication in the Deutsche Nationalbibliografie; detailed bibliographic data are available in the Internet at <http://dnb.d-nb.de>.

License

This work is licensed under a Creative Commons Attribution 3.0 Unported license (CC-BY 3.0): <http://creativecommons.org/licenses/by/3.0/legalcode>.



In brief, this license authorizes each and everybody to share (to copy, distribute and transmit) the work under the following conditions, without impairing or restricting the authors' moral rights:

- Attribution: The work must be attributed to its authors.

The copyright is retained by the corresponding authors.

Digital Object Identifier: 10.4230/LIPics.ICDT.2017.0

ISBN 978-3-95977-024-8

ISSN 1868-8969

<http://www.dagstuhl.de/lipics>

Contents

Preface

<i>Michael Benedikt and Giorgio Orsi</i>	0:vii
--	-------

Invited Talks

Rewritability in Monadic Disjunctive Datalog, MMSNP, and Expressive Description Logics

<i>Cristina Feier, Antti Kuusisto, and Carsten Lutz</i>	1:1–1:17
---	----------

Graphs, Hypergraphs, and the Complexity of Conjunctive Database Queries

<i>Dániel Marx</i>	2:1–2:1
--------------------------	---------

The Smart Crowd – Learning from the Ones Who Know

<i>Tova Milo</i>	3:1–3:1
------------------------	---------

Full Papers

GYM: A Multiround Distributed Join Algorithm

<i>Foto N. Afrati, Manas R. Joglekar, Christopher M. Re, Semih Salihoglu, and Jeffrey D. Ullman</i>	4:1–4:18
---	----------

Top-k Querying of Unknown Values under Order Constraints

<i>Antoine Amarilli, Yael Amsterdamer, Tova Milo, and Pierre Senellart</i>	5:1–5:18
--	----------

Combined Tractability of Query Evaluation via Tree Automata and Cycluits

<i>Antoine Amarilli, Pierre Bourhis, Mikaël Monet, and Pierre Senellart</i>	6:1–6:19
---	----------

The Complexity of Reverse Engineering Problems for Conjunctive Queries

<i>Pablo Barceló and Miguel Romero</i>	7:1–7:17
--	----------

Answering FO+MOD Queries Under Updates on Bounded Degree Databases

<i>Christoph Berkholz, Jens Keppeler, and Nicole Schweikardt</i>	8:1–8:18
--	----------

How Many Variables Are Needed to Express an Existential Positive Query?

<i>Simone Bova and Hubie Chen</i>	9:1–9:16
---	----------

Expressive Power of Entity-Linking Frameworks

<i>Douglas Burdick, Ronald Fagin, Phokion G. Kolaitis, Lucian Popa, and Wang-Chiew Tan</i>	10:1–10:18
--	------------

k -Regret Minimizing Set: Efficient Algorithms and Hardness

<i>Wei Cao, Jian Li, Haitao Wang, Kangning Wang, Ruosong Wang, Raymond Chi-Wing Wong, and Wei Zhan</i>	11:1–11:19
--	------------

The Design of Arbitrage-Free Data Pricing Schemes

<i>Shaleen Deep and Paraschos Koutris</i>	12:1–12:18
---	------------

A Logic for Document Spanners

<i>Dominik D. Freydenberger</i>	13:1–13:18
---------------------------------------	------------

20th International Conference on Database Theory (ICDT 2017).

Editors: Michael Benedikt and Giorgio Orsi



Leibniz International Proceedings in Informatics

LIPICs Schloss Dagstuhl – Leibniz-Zentrum für Informatik, Dagstuhl Publishing, Germany

Distributed Query Monitoring through Convex Analysis: Towards Composable Safe Zones <i>Minos Garofalakis and Vasilis Samoladas</i>	14:1–14:18
Entropy Bounds for Conjunctive Queries with Functional Dependencies <i>Tomasz Gogacz and Szymon Toruńczyk</i>	15:1–15:17
On the Automated Verification of Web Applications with Embedded SQL <i>Shachar Itzhaky, Tomer Kotek, Noam Rinetzky, Mooly Sagiv, Orr Tamir, Helmut Veith, and Florian Zuleger</i>	16:1–16:18
Detecting Ambiguity in Prioritized Database Repairing <i>Benny Kimelfeld, Ester Livshits, and Liat Peterfreund</i>	17:1–17:20
Compression of Unordered XML Trees <i>Markus Lohrey, Sebastian Maneth, and Carl Philipp Reh</i>	18:1–18:17
Dynamic Complexity under Definable Changes <i>Thomas Schwentick, Nils Vortmeier, and Thomas Zeume</i>	19:1–19:18
Constant Delay Enumeration for FO Queries over Databases with Local Bounded Expansion <i>Luc Segoufin and Alexandre Vigny</i>	20:1–20:16
m-tables: Representing Missing Data <i>Bruhathi Sundarmurthy, Paraschos Koutris, Willis Lang, Jeffrey Naughton, and Val Tannen</i>	21:1–21:20
Better Streaming Algorithms for the Maximum Coverage Problem <i>Andrew McGregor and Hoa T. Vu</i>	22:1–22:18