



## Special Issue on the 2018 International Conference on Database Theory

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This volume is dedicated to invited papers from the 21st edition of the International Conference on Database Theory (ICDT 2018). The conference was held in Vienna, Austria on March 26–29, 2018. Originally biennial, the ICDT conference has been held annually and jointly with the conference on Extending Database Technology (EDBT) since 2009.

The Program Committee of ICDT 2018 has selected the papers invited to the special issue with the goal of highlighting top contributions from the conference. The invited papers were further reviewed according to the journal’s rigorous peer-review standards. The four selected papers represent different viewpoints, and contribute significant insights, on the fundamental challenge of query evaluation over databases.

- The paper “*Enumeration Complexity of Conjunctive Queries with Functional Dependencies*,” by Nofar Carmeli and Markus Kröll, explores the fine-grained complexity of listing (enumerating) the query answers with a small delay in between, and specifically, how database dependencies can be exploited to broaden the class of queries that admit a fast enumeration.
- The paper “*Connecting Knowledge Compilation Classes and Width Parameters*,” by Antoine Amarilli, Florent Capelli, Mikaël Monet, and Pierre Senellart, investigates the connections between classes of Boolean circuits that form the basis of a general tool, namely knowledge compilation, for problem-solving in computer science. These problems include various forms of query evaluation, and the paper establishes upper and lower bounds on the complexity of translating circuits from one family into another.
- The paper “*A More General Theory of Static Approximations for Conjunctive Queries*,” by Pablo Barceló, Miguel Romero, and Thomas Zeume, considers the approach of overcoming the intrinsic complexity of conjunctive queries by replacing the query with a more efficient alternative that constitutes an approximation

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with theoretical guarantees. The focus of the paper is on overapproximation, where the alternative query generalizes the original one.

- The paper “*Distribution Policies for Datalog*,” by Bas Ketsman, Aws Albarghouthi and Paraschos Koutris, studies the challenge of evaluating Datalog programs (recursive queries) in a distributed manner. The paper investigates several fundamental problems such as parallel-correctness (i.e., when certain distributed evaluations compute the true query result), and the required number of communication rounds.