

8th Conference on the Theory of Quantum Computation, Communication and Cryptography

TQC 2013, May 21–23, 2013, Guelph, Ontario, Canada

Edited by
Simone Severini
Fernando Brandao



Editors

Simone Severini
Department of Computer Science
University College London
s.severini@ucl.ac.uk

Fernando Brandao
Department of Computer Science
University College London
f.brandao@ucl.ac.uk

ACM Classification 1998

E.3 Data Encryption, E.4 Coding and Information Theory, F. Theory of Computation

ISBN 978-3-939897-55-2

Print ISBN 978-1-62993-704-5

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/978-3-939897-55-2>.

Publication date

November, 2013

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:



<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.TQC.2013.i

ISBN 978-3-939897-55-2

ISSN 1868-8969

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

Contents

Ancilla Driven Quantum Computation with Arbitrary Entangling Strength <i>Kerem Halil Shah and Daniel K.L. Oi</i>	1
Another Subexponential-time Quantum Algorithm for the Dihedral Hidden Subgroup Problem <i>Greg Kuperberg</i>	20
Universal Entanglers for Bosonic and Fermionic Systems <i>Joel Klassen, Jianxin Chen, and Bei Zeng</i>	35
Easy and Hard Functions for the Boolean Hidden Shift Problem <i>Andrew M. Childs, Robin Kothari, Maris Ozols, and Martin Roetteler</i>	50
Dequantizing Read-once Quantum Formulas <i>Alessandro Cosentino, Robin Kothari, and Adam Paetznick</i>	80
The Minimum Size of Qubit Unextendible Product Bases <i>Nathaniel Johnston</i>	93
Robust Online Hamiltonian Learning <i>Christopher E. Granade, Christopher Ferrie, Nathan Wiebe, and D.G. Cory</i>	106
Classical and Quantum Algorithms for Testing Equivalence of Group Extensions <i>Kevin C. Zatloukal</i>	126
Provable Advantage for Quantum Strategies in Random Symmetric XOR Games <i>Andris Ambainis and Jānis Iraids</i>	146
Towards Efficient Decoding of Classical-Quantum Polar Codes <i>Mark M. Wilde, Olivier Landon-Cardinal, and Patrick Hayden</i>	157
On the Query Complexity of Perfect Gate Discrimination <i>Giulio Chiribella, Giacomo Mauro D'Ariano, and Martin Roetteler</i>	178
Symmetries of Codeword Stabilized Quantum Codes <i>Salman Beigi, Jianxin Chen, Markus Grassl, Zhengfeng Ji, Qiang Wang, and Bei Zeng</i>	192
Certifying the Absence of Apparent Randomness under Minimal Assumptions <i>Gonzalo de la Torre, Chirag Dhara, and Antonio Acín</i>	207
Is Global Asymptotic Cloning State Estimation? <i>Yuxiang Yang and Giulio Chiribella</i>	220
Distillation of Non-Stabilizer States for Universal Quantum Computation <i>Guillaume Duclos-Cianci and Krysta M. Svore</i>	235
Realistic Cost for the Model of Coherent Computing <i>Akira SaiToh</i>	244
Optimal Robust Self-Testing by Binary Nonlocal XOR Games <i>Carl A. Miller and Yaoyun Shi</i>	254

Exact Quantum Query Complexity of EXACT and THRESHOLD <i>Andris Ambainis, Jānis Iraids, and Juris Smotrovs</i>	263
The Quantum Entropy Cone of Stabiliser States <i>Noah Linden, František Matuš, Mary Beth Ruskai, and Andreas Winter</i>	270
Kitaev's \mathbb{Z}_d -Codes Threshold Estimates <i>Guillaume Duclos-Cianci and David Poulin</i>	285
Optimal Quantum Circuits for Nearest-Neighbor Architectures <i>David J. Rosenbaum</i>	294
Access Structure in Graphs in High Dimension and Application to Secret Sharing <i>Anne Marin, Damian Markham, and Simon Perdrix</i>	308