11th Conference on the Theory of Quantum Computation, Communication and Cryptography

TQC 2016, September 27–29, 2016, Berlin, Germany

Edited by

Anne Broadbent

Editor

Anne Broadbent
Department of Mathematics and Statistics
University of Ottawa
Canada
abroadbe@uottawa.ca

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Preface

The 11th Conference on the Theory of Quantum Computation, Communication and Cryptography was organized by the Freie Universität Berlin from the 27th to the 29th of September 2016. Quantum computation, quantum communication, and quantum cryptography are subfields of quantum information processing, an interdisciplinary field of information science and quantum mechanics. The TQC conference series focuses on theoretical aspects of these subfields. The objective of the conference is to bring together researchers so that they can interact with each other and share problems and recent discoveries.

A list of the previous editions of TQC follows:

- TQC 2015, Université libre de Bruxelles, Belgium
- TQC 2014, National University of Singapore, Singapore
- TQC 2013, University of Guelph, Canada
- TQC 2012, The University of Tokyo, Japan
- TQC 2011, Universidad Complutense de Madrid, Spain
- TQC 2010, University of Leeds, UK
- TQC 2009, Institute for Quantum Computing, University of Waterloo, Canada
- TQC 2008, University of Tokyo, Japan
- TQC 2007, Nara Institute of Science and Technology, Nara, Japan
- TQC 2006, NTT R&D Center, Atsugi, Kanagawa, Japan

The conference consisted of invited talks, contributed talks and a poster session. This year, contributed talks were solicited for two tracks: Conference Track (talk + proceedings) and Workshop Track (talk only). The accepted submissions to the Conference Track appear in these Proceedings, while the accepted Workshop Track submissions are only listed here. Accepted submissions for both tracks are listed in their order of submission.

The invited talks were given by Andris Ambainis (University of Latvia), Ronald Hanson (TU Delft), Lidia del Rio (University of Bristol), Andreas Winter (Universitat Autònoma de Barcelona).

The conference was possible thanks to generous donations from Microsoft, Raytheon BBN Technologies, Institute for Quantum Computing, CryptoWorks21, as well as Journal of Physics A and Quantum Science and Technology. I am deeply indebted to the members of the Program Committee and all subreviewers for their precious contribution in reviewing the submissions. I also wish to thank the members of the Local Organizing Committee for their considerable efforts in organizing the conference. I would like to thank Marc Herbstritt and Michael Wagner (Dagstuhl Publishing) for their technical help, as well as Saeid Molladavoudi for his precious help in putting together the proceedings. Finally, I would like to thank the members of the Steering Committee for offering me this opportunity and for their support. And, of course, a big thank you to all contributors and participants!

August 2016 Anne Broadbent

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On Variational Expressions for Quantum Relative Entropies

Mark Wilde, Marco Tomamichel and Mario Berta.
Strong converse rates for private communication over quantum channels

Giacomo De Palma, Dario Trevisan and Vittorio Giovannetti.
Gaussian States Minimize the Output Entropy of the One-Mode Quantum Attenuator

Stacey Jeffery and Shelby Kimmel.
NAND-Trees and Graph Connectivity in Quantum Algorithms

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Operational meaning of quantum measures of recovery

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Quantum Communication Complexity of Distributed Set Joins

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