

QPL 2010

7TH WORKSHOP ON QUANTUM PHYSICS AND LOGIC

Oxford University, UK

May 29–30, 2010

Editors:

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Preface

This volume contains the pre-proceedings of the 7th International Workshop on Quantum Physics and Logic (QPL 2010), which will be held May 29–30, 2010 at Oxford University.

The goal of this workshop series is to bring together researchers working on mathematical foundations of quantum physics, quantum computing and spatio-temporal causal structures, and in particular those that use logical tools, ordered algebraic and category-theoretic structures, formal languages, semantic methods and other computer science methods for the study of physical behavior in general. Over the past few years, there has been growing activity in these foundational approaches, together with a renewed interest in the foundations of quantum theory, which complement the more mainstream research in quantum computation. Earlier workshops in this series, with the same acronym under the name “Quantum Programming Languages”, were held in Ottawa (2003), Turku (2004), Chicago (2005), and Oxford (2006). The first QPL under the new name Quantum Physics and Logic was held in Reykjavik (2008), followed by Oxford (2009).

The workshop program is comprised of invited lectures by

- John Baez (UC Riverside and Singapore),
- John Barrett (Nottingham),
- Louis Crane (Kansas State), and
- Benjamin Schumacher (Kenyon College),

as well as 22 contributed talks. The workshop includes a special session dedicated to the memory of Itamar Pitowsky.

The contributed talks were selected, based on submitted abstracts, by a program committee whose members were Howard Barnum (Perimeter), Dan Browne (UCL, London), Bob Coecke (Oxford), Andreas Döring (Oxford), John Harding (NMSU), Viv Kendon (Leeds), Keye Martin (NRL, Washington), Prakash Panangaden (McGill), Simon Perdrix (Grenoble), Peter Selinger (Dalhousie), and Alex Wilce (Susquehanna).

The local organizers are Bob Coecke and Ross Duncan.

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- EPSRC Advanced Research Fellowship The Structure of Quantum Information and its Applications to IT (EP/D072786/1);
- EC FP6 STREP Foundational Structures in Quantum Information and Computation (QICS).

The workshop is preceded by a QICS School on “Foundational Structures in Quantum Computation and Information”, held in Oxford May 24–28.

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