

Curriculum Vitae

Name and contact information:

Michal Sedlák

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Occupation:

Postdoc position: 2010- present, Assegno di ricerca in group of **prof. G. M. D'Ariano**, Dipartimento di Fisica "A. Volta", Università degli studi di Pavia, Italy
Optimization of quantum algorithms using the formalism of Quantum combs

Education:

2005 - 2009 **PhD study:** Topic „**Quantum theory of unambiguous measurements**“ investigated in Research Center for Quantum Information, Institute of physics, Slovak Academy of Sciences, **supervised by prof. V. Bužek**

2000 – 2005 **University:** **Comenius University, Bratislava**
Faculty of mathematics, physics and informatics
Concentration: **Theoretical and mathematical physics**
Degree: Magister, M.Sc. equivalent
Thesis in QIP: The decomposition of unitary operators into quantum logic circuits.

Skills:

Languages: English – advanced
Russian – elementary

Computer knowledge: MS Office products, C++, Delphi, Corel Draw, Photoshop, small network administration

Hobbies: photography, snowboarding, ice hockey, hiking, biking, roller skating

List of publications:

Mário Ziman, and Michal Sedlák, „**Single-shot discrimination of quantum unitary processes**“, Journal of Modern Optics, Volume 57, Issue 3, Pages 253-259 (2010)

Michal Sedlák, „**Quantum theory of unambiguous measurements**“, Acta Physica Slovaca 59, No.6, 653-792 (2009)

Mário Ziman, Teiko Heinosaari, and Michal Sedlák „**Unambiguous comparison of quantum measurements**“, Phys. Rev. **A** 80, 052102 (2009)

Michal Sedlák, Mário Ziman, Vladimír Bužek, and Mark Hillery, „**Unambiguous identification of coherent states II: Multiple resources**“, Phys. Rev. **A** 79, 062305 (2009)

Michal Sedlák, and Mário Ziman, „**Unambiguous comparison of unitary channels**“, Phys. Rev. **A** 79, 012303 (2009)

Michal Sedlák, Mário Ziman, Vladimír Bužek, and Mark Hillery, “**Unambiguous comparison of ensembles of quantum states**”, Phys. Rev. A 77, 042304 (2008)

Michal Sedlák, Mário Ziman, Ondřej Příbyla, Vladimír Bužek, and Mark Hillery, „**Unambiguous identification of coherent states: Searching a quantum database**“, Phys. Rev. A 76, 022326

Michal Sedlák, and Martin Plesch, „**Towards optimization of quantum circuits**“, Central European Journal of physics, vol. 6 no.1, 128-134 (2008)

List of contributed talks:

„Unambiguous comparison of Unitary Channels“, 6th Central European Quantum Information Processing Workshop, 1. – 4.6.2009, Jindřichuv Hradec, Czech Republic

„Unambiguous identification of coherent states“, Young European Physicists meeting, 17. - 21.9.2007, Frauenchiemsee, Germany

„Unambiguous identification of coherent states“, Identifying quantum states and operations, 20. - 24.6. 2007, Budmerice, Slovakia

„Unambiguous identification of coherent states“, Informal Quantum Information Gathering (IQING), Innsbruck, 11. - 14.4. 2007

„Unambiguous coherent state identification“, Young European Physicists meeting, Budmerice, 11.- 15.12. 2006

„Decompositions of unitary matrices“, Informal Quantum Information Gathering (IQING), Paris, 23. - 25.7. 2005

„Decompositions of unitary matrices into Quantum logic circuits“, Young European Physicists meeting, Budmerice, 30.11.- 4.12. 2004

List of presented posters:

Michal Sedlák, Mário Ziman, Vladimír Bužek, and Mark Hillery, „**Unambiguous identification of coherent states: Multiple resources, repeated use & optimality**“, Quantum Optics VII:Quantum Engineering of Atoms and Photons, 8 – 12.6.2009, Zakopane, Poland

Michal Sedlák, Mário Ziman, Vladimír Bužek, and Mark Hillery, „**Unambiguous comparison of ensembles of quantum states**“, QICS Workshop on "Foundational Structures for Quantum Information and Computation", 14 – 20.9.2008, Obergurgl, Austria

Michal Sedlák, Mário Ziman, Vladimír Bužek, and Mark Hillery, „**Unambiguous comparison of ensembles of quantum states**“, 5th Central European Quantum Information Processing Workshop, 5-8 June 2008, Telč, Czech Republic

Michal Sedlák, Mário Ziman, Ondřej Příbyla, Vladimír Bužek, and Mark Hillery, „**Unambiguous identification of coherent states: Searching a quantum database**“, International Summer School in Quantum Information Processing and Control (QUIC 2007), 26 - 31.8.2007, Maynooth, Ireland

Michal Sedlák, Ondřej Příbyla, Mário Ziman, Vladimír Bužek, and Mark Hillery, „**Unambiguous coherent state identification**“, QUROPE Winter School, 18 - 24.2. 2007, Obergurgl, Austria

Michal Sedlák, and Martin Plesch, „**Towards optimization of quantum circuits**“, International Summer School and workshop on Quantum Information, 25 - 30.9.2005, Dresden, Germany

Attended schools in QIP:

August 2007

International Summer School in Quantum Information Processing and Control (QUIC 2007)

Maynooth, Ireland

Duration: 1 week

February 2007

QUROPE Winter School

Obergurgl, Austria

Duration: 1 week

January – April 2006

Quantum information, computation and complexity

Paris, France

Duration: 3 months

September 2005

International Summer School on Quantum Information

Dresden, Germany

Duration: 1 month

References upon request:

Prof. V. Bužek Research Center for Quantum Information, Department of physics, Slovak Academy of Sciences, e-mail: buzek@savba.sk

Mark Hillery Department of Physics and Astronomy, Hunter College of the City University of New York, e-mail: mhillery@hunter.cuny.edu

Pavia, 23th of March 2010

Michal Sedlák