

OLIVIA DI MATTEO

PERSONAL DATA

Current: PhD candidate, University of Waterloo / Institute for Quantum Computing

E-mail: odimatte@uwaterloo.ca

Web: glassnotes.github.io | github.com/glassnotes

Research interests: Quantum tomography; quantum circuit synthesis; combinatorial designs; application of high-performance computing (including parallel programming and machine learning techniques) to physical problems.

Computational skills: Python, C/C++, OpenMP/MPI, Linux

EDUCATION AND RESEARCH EXPERIENCE

Sep. 2015 - Present	PhD Physics (Quantum Information) University of Waterloo / IQC, Canada Supervisor: Michele Mosca Anticipated completion: late 2018
June 2017 - Aug. 2017	Visiting student researcher
Oct. 2016 - Nov. 2016	Max Planck Institute for the Science of Light, Erlangen, Germany
May 2015 - Aug. 2015	Supervisors: Markus Grassl and Luis L. Sánchez-Soto
Sep. 2013 - May 2015	MSc Physics (Quantum Information) University of Waterloo / IQC, Canada Thesis: <i>Parallelizing quantum circuit synthesis</i> Supervisor: Michele Mosca
May 2013 - Aug. 2013	NSERC USRA summer student Lakehead University, Canada Supervisor: Hubert de Guise
May 2012 - Aug. 2012	NSERC USRA summer student McMaster University, Canada Supervisor: James Wadsley
May 2011 - Aug. 2011	NSERC USRA summer student Lakehead University / TBRRI, Canada Supervisor: Oleg Rubel
2010	ARCT Piano Performance Royal Conservatory of Music, Toronto, Canada
Sep. 2009 - May 2013	HBSc Mathematical Physics Lakehead University, Canada Thesis: <i>Mutually unbiased bases and mutually orthogonal Latin squares</i> Supervisor: Hubert de Guise

WORK EXPERIENCE

June 2018 - Sep. 2018	Intern Quantum Architectures and Computation group Microsoft Research, Redmond, WA, USA Supervisor: Christopher Granade,
June 2014 - Aug. 2015	Part-time course manager, data science stream Udacity, Mountain View, California, USA (remote)
2011-2013	Marker Dept. of Physics and Dept. of Mathematical Sciences Lakehead University, Canada

TEACHING EXPERIENCE

2017	Fundamentals of University Teaching (certificate) Centre for Teaching Excellence, University of Waterloo, Canada
Jan. 2017 - Apr. 2017 Jan. 2016 - Apr. 2016	Teaching assistant, PHYS 467 (Intro to Quant. Info. Processing) Filling in for lectures, office hours, assignment marking University of Waterloo, Canada
Jan. 2014 - Apr. 2014	Teaching assistant, PHYS 111 (Physics I) In-class tutorials, online course management, marking University of Waterloo, Canada
Sep. 2012 - Dec. 2012	Teaching assistant, PHYS 1113 (Physics Essentials I) In-class tutorials Lakehead University, Canada

AWARDS

2017	Outstanding Reviewer Award, New Journal of Physics
2015-2018	President's Graduate Scholarship, University of Waterloo
2015-2018	NSERC CGS D, University of Waterloo
2013-2014	President's Graduate Scholarship, University of Waterloo
2013-2014	NSERC CGS M, University of Waterloo
2013	Institute for Quantum Computing Entrance Award, University of Waterloo
2013	Dean's Scholar Award, Physics, Lakehead University
2013	Ontario Graduate Scholarship (<i>declined</i>), Lakehead University
2013	NSERC USRA, Lakehead University
2012	NSERC USRA, McMaster University
2011	NSERC USRA, Lakehead University
2009-2013	President's List, Lakehead University
2009-2013	Free Tuition Entrance Scholarship, Lakehead University
2009	Millennium Scholarship

PUBLICATIONS

- 2018 H. de Guise, **ODM**, and L. L. Sánchez-Soto. *Simple factorization of unitary transformations*. Phys. Rev. A **97** 022328.
- 2017 **ODM**, L. L. Sánchez-Soto, G. Leuchs and M. Grassl. *Coarse graining the phase space of N qubits*. Phys. Rev. A **95** 022340.
- 2017 Amy M., **ODM**, Gheorghiu V., Mosca M., Parent A., Schanck J. *Estimating the Cost of Generic Quantum Pre-image Attacks on SHA-2 and SHA-3*. In: Avanzi R., Heys H. (eds) Selected Areas in Cryptography SAC 2016. SAC 2016. Lecture Notes in Computer Science, vol 10532. Springer, Cham.
- 2016 **ODM**, M. Mosca *Parallelizing quantum circuit synthesis*. Quantum Science and Technology **1** (1).
- 2015 **ODM**, D. Z. Djokovic, and I.S. Kotsireas. *Symmetric Hadamard matrices of order 116 and 172 exist*. Special Matrices **3** (1), ISSN (Online) 2300-7451
- 2014 M. Gaeta, **ODM**, A. B. Klimov, and H. de Guise. *Discrete phase space approach to mutually orthogonal Latin squares*. J. Phys. A: Math. Theor. **47** 435303.
- 2012 A. Darbandi, E. Devoie, **ODM**, and O. Rubel. *Modeling the radiation ionization energy and energy resolution of trigonal and amorphous Selenium from first principles*. J. Phys.: Condens. Matter **24** 455502.

CONFERENCE PRESENTATIONS (INVITED)

- 2017 **ODM**. *Parallelizing quantum circuit synthesis*. ICCAD'17 Workshop on Design Automation for Quantum Computers (16 November 2017, Irvine, California, USA). *Talk*.

SEMINARS (INVITED)

- 2017 **ODM**. *Introduction to quantum computing and parallel quantum circuit synthesis*. Bank of Canada (28 November 2017, Ottawa, ON). *Talk*.

CONFERENCE PRESENTATIONS (CONTRIBUTED)

- 2018 **ODM**. *Resource estimation in quantum computing*. Theory Canada 13 (9 June 2018, Antigonish, NS). *Talk*.
- 2018 **ODM**, M. Mosca. *Parallelizing quantum circuit synthesis*. Ontario Advanced Research Computing Congress (15-17 May 2018, Toronto, ON). *Poster*.
- 2016 M. Amy, **ODM**, V. Gheorghiu, M. Mosca, A. Parent, J. Schanck. *Estimating the cost of generic quantum pre-image attacks on SHA-2 and SHA-3*. TQC (27 September 2016, Berlin, Germany). *Poster*.
- 2016 **ODM**, M. Mosca. *Parallelizing quantum circuit synthesis*. TQC (27 September 2016, Berlin, Germany). *Poster*.
- 2016 **ODM**, L. L. Sánchez-Soto, M. Grassl. *Multi-scale discrete Wigner functions*. 23rd Central European Workshop on Quantum Optics (30 June 2016, Kolymbari, Crete, Greece). *Talk*.
- 2016 **ODM**. *Parallelizing quantum circuit synthesis*. Quantum Computer Science (21 April 2016, Banff International Research Station, Banff, AB). *Talk*.
- 2011 **ODM**. *Dissociation of localized geminate excitations in amorphous selenium*. Lake Superior Medical Imaging Workshop (30 September 2011, Thunder Bay, ON). *Talk*.

SERVICE

- 2018 Referee for Quantum Information Processing
- 2017 Referee for Journal of Physics A, New Journal of Physics, Quantum Information Processing
- 2016 Referee for Quantum Information Processing
- 2015-2016 Vice president social, IQC Graduate Student Association
- 2014-2015 Member at large, IQC Graduate Student Association