

Ish Dhand
Curriculum Vitae
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PERSONAL DETAILS

Office Address: Institute for Quantum Science and Technology, University of Calgary, 2500 University Dr. NW, Calgary, AB, Canada, T2N 1N4
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EDUCATION

2015 Ph.D. Candidate, Physics & Astronomy University of Calgary, Canada
2012 B.Tech., Computer Science Indian Institute of Technology Kanpur

PUBLICATIONS

- 2015 Ish Dhand, Hubert de Guise, and Barry C Sanders. Group-theoretic Algorithms for Multiphoton Interferometry. *Manuscript in preparation*
2015 Ish Dhand, Abdullah Khalid, He Lu, and Barry C Sanders. Accurate and Precise Characterization of Linear Optical Devices. *Manuscript in preparation*
2014 Ish Dhand and Barry C Sanders. Stability of the Trotter-Suzuki decomposition. *Journal of Physics A: Mathematical and Theoretical*, 47(26):265206, July 2014

TALKS AND CONFERENCE PARTICIPATION

- 2015 Ish Dhand, Abdullah Khalid, He Lu and Barry Sanders, Accurate and Precise Characterization of Linear Optical Devices (invited talk), SPIE Optical Engineering + Applications, San Diego, CA, USA. 10 August 2015.
2015 Ish Dhand, Hubert de Guise and Barry Sanders, Algorithms for Boson Realizations of $SU(n)$ (contributed poster), Canadian Association of Physics (CAP) Congress, Edmonton, AB, Canada. 18 June 2015.
2015 Ish Dhand, Abdullah Khalid, He Lu and Barry Sanders, Accurate and Precise Characterization of Linear Optical Interferometers (contributed talk), Canadian Association of Physics (CAP) Congress, Edmonton, AB, Canada. 18 June 2015.
2015 Ish Dhand, Hubert de Guise and Barry Sanders, Group-theoretic Algorithms for Multiphoton Interferometry (contributed poster), Quantum Information Processing (QIP), Sydney, NSW, Australia. 12 January 2015.

- 2014 Ish Dhand and Joydip Ghosh, Quantum Simulation and Implementations (invited talk), Alberta Quantum-Nano Workshop, Red Deer, Alberta, Canada. 14 July 2014.
- 2013 Ish Dhand and Barry C. Sanders, Finite precision in Trotter-Suzuki decomposition (contributed talk), Canadian Quantum Information Students' conference, Calgary. 24 Jun 2013 - 29 Jun 2013.
- 2013 Ish Dhand and Barry C. Sanders, Finite precision in Trotter-Suzuki decomposition (invited talk), Institute for Quantum Computing, University of Waterloo, Waterloo, Ontario. 6 Jun 2013
- 2013 Ish Dhand and Barry C. Sanders, Finite precision in Trotter-Suzuki decomposition (contributed talk), CAP Congress 2013, Montreal. 27 May 2013 - 31 May 2013.

COMPETITIVE AWARDS AND ACHIEVEMENTS

- 2015 Awarded \$2275 Departmental Graduate Student Excellence Award by Department of Physics and Astronomy, University of Calgary.
- 2014 Awarded \$2300 Departmental Graduate Student Excellence Award by Department of Physics and Astronomy, University of Calgary.
- 2013 Awarded \$3600 Queen Elizabeth II Fellowship, 2013 by University of Calgary.
- 2012 Awarded \$7200 Departmental Fellowship, 2012-2013 by the department of Physics and Astronomy, University of Calgary.
- 2009 Awarded \$6000 Aditya Birla Scholarship by Aditya Birla Group. Awarded to ten out of 10,000 incoming students to the Indian Institutes of Technology.
- 2008 Won the Indian Physics Association prize for the Best Solution to a Challenging Theoretical Problem.
- 2008 Stood 22nd all over India in the Joint Entrance Examination out of the 600,000 candidates who appeared.
- 2008 Awarded Gold Medal in Indian National Physics Olympiad.
- 2007 Represented India at the 8th Asian Physics Olympiad at Shanghai.
- 2006 Awarded the National Child Award by the Prime Minister of India. Given to 35 students all over India with outstanding caliber in academics.
- 2004 Awarded National Bal Shree by President of India for creative scientific innovation.

RESEARCH EXPERIENCE

- 2014 **Multi-photon interferometry using Wigner D-functions**
with Dr. Hubert de Guise, Lakehead University, Thunder Bay
- 2014 **Implementations of $SU(n)$ Quantum Transformation using Slits**
with Dr. Urbasi Sinha, Raman Research Institute, Bangalore
- 2013 **Exact quantum interference with two heralded photons**
with Dr. Yu-ao Chen, University of Science and Technology China, Shanghai
- 2013 **The Stability of the Trotter-Suzuki Decomposition**
with Dr. Barry Sanders, University of Calgary, Calgary

- 2012 **Classical simulation of noninteracting-fermion quantum circuits**
with Dr. V. Ravishankar, Department of Physics and Dr. P. Kurur, Department of Computer Science, IIT Kanpur, Kanpur
- 2011 **Classical algorithms for simulation of open quantum systems using matrix product states**
with Dr. Andreas Läuchli, Max Planck Institute for Physics of Complex Systems, Dresden.

TEACHING EXPERIENCE

- 2015 TA, Quantum Mysteries and Paradoxes (Delivered two lectures.)
- 2015 TA, Electromagnetic Theory I (Designed and delivered two review lectures.)
- 2014 TA, Freshman Mechanics
- 2013 TA, Senior Physics Laboratory
- 2012 TA, Freshman Mechanics

SUPERVISION AND SERVICE

- 2015 Organizer of Workshop on Multi-Photon Interference at Shanghai, China during 7-11 May 2015.
- 2014 Supervised summer undergraduate student on Multi-photon interferometry at IQST Calgary.
- 2013 Organizer of CQISC, Canadian Quantum Information Students' Conference held in June 2013 at Calgary.
- 2012 Organizer of PHAS-Lunches, fortnightly lunch-talks in the physics department at University of Calgary.
- 2011 Editor of the science and technology magazine of IIT Kanpur
- 2010 Organizer and chair of ICARUS-2010, undergraduate research conference organized at IIT Kanpur.

REFEREES

Prof. Barry C. Sanders

Professor, Department of Physics and Astronomy
 Director, Institute for Quantum Information Science
 AITF iCORE Strategic Chair in Quantum Information Science
 QianRen Chair Professor, University of Science and Technology China
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Prof. Hubert de Guise

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