

Abdullah Khalid

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Work Experience

- Aug 2019 – Jun 2022 **Assistant Professor**, *Habib University*, Karachi, Pakistan
Jan 2019 – Jun 2019 **Chief Technical Officer**, *Cosmic Perspective*, Lahore, Pakistan
Sep 2013 – Sep 2018 **Graduate and teaching assistant**, *University of Calgary*, Calgary, Canada
Jul 2012 – Oct 2012 **Research assistant**, *Lahore University of Management Sciences*, Lahore, Pakistan

Volunteer Roles

- May 2022 – **Coordinator**, *QEducation department*, QWorld
May 2021 – Apr 2022 **Vice-coordinator**, *QEducation department*, QWorld
Feb 2021 – Apr 2021 **Member**, *QEducation department*, QWorld
Oct 2020 – **Member**, *QPakistan*, QWorld

Education

- Sep 2013 – Sep 2018 **Doctor of Philosophy (Physics)**, *University of Calgary*, Calgary, Canada
Oct 2008 – May 2012 **Bachelor of Science (Physics)**, *Lahore University of Management Sciences*, Lahore, Pakistan

Publications

- Abdullah Khalid, Dylan Spivak, Barry C. Sanders, and Hubert de Guise, Permutational symmetries for coincidence rates in multimode multiphotonic interferometry. *Physical Review A* 97, 063802, 2018. arXiv:1709.06615.
- Ya-Dong Wu, Abdullah Khalid, and Barry C. Sanders, Efficient code for relativistic quantum summoning. *New Journal of Physics* 20, 063052, 2018. arXiv:1711.10594.
- Ish Dhand, Abdullah Khalid, He Lu, and Barry C. Sanders, Accurate and precise characterization of linear optical interferometers. *Journal of Optics* 18, 035204, 2016. arXiv:1508.00283.

Theses

- Abdullah Khalid, Multi-Mode Multi-Photon Interferometry Applications for Quantum Information Processing (doctoral thesis). *University of Calgary*, Calgary, Canada. September 2018. Advisor: Barry C. Sanders. <http://dx.doi.org/10.11575/PRISM/33073>
- Abdullah Khalid and Hassan Bukhari, Domestic Concentrated Solar Thermal Co-generation Plants for Pakistan (undergraduate final year project thesis). *School of Science and Engineering*, *Lahore University of Management Sciences*, Lahore, Pakistan. May 2012. Advisors: Sabieh Anwar, Nauman Zaffar.

Certifications

- CryptoWorks21: a program funded by NSERC CREATE Training program in Building a Workforce for the Cryptographic Infrastructure of the 21st Century. Completed September 2018.

Teaching

Dhanani School of Science and Engineering, Habib University, Pakistan

- Spring 2022
 - PHY302/MATH302 Mathematical Methods for Physics
 - PHY101 Mechanics Thermodynamics
 - MATH102 Calculus II
- Fall 2021
 - PHY300/CS314 Quantum Computing
 - PHY201 Modern Physics
- Spring 2021
 - PHY300/CS314 Quantum Computing
 - PHY302/MATH302 Mathematical Methods for Physics
 - PHY101L Mechanic and Thermodynamics Lab
- Fall 2020
 - SCI122 Inventing the Information Age
 - MATH202 Engineering Math
- Spring 2020
 - PHY300/CS314 Quantum Computing
 - PHY101 Mechanics Thermodynamics
 - MATH352/PHY352 Group Theory for Physicists
- Fall 2019
 - PHY202 Quantum Mechanics I
 - PHY101L Mechanic and Thermodynamics Lab
 - MATH202 Engineering Math

Department of Physics and Astronomy, University of Calgary, Canada

- PHYS365 Acoustics, Optics and Modern Physics, Fall 2016. Taught a 5 week module on Modern Physics.

Oral Presentations

- Abdullah Khalid, Dylan Spivak, Barry C. Sanders, and Hubert de Guise, Permutational symmetries in photonic interferometry. Lahore University of Management Sciences, Lahore, Pakistan, 26 November 2018.

- Ya-Dong Wu, Abdullah Khalid, and Barry C. Sanders, Codes for Quantum Information Summoning (contributed). Conference on Quantum Information and Quantum Control VII, The Fields Institute, University of Toronto, Toronto, Canada, 28 August - 1 September, 2017.

Poster Presentations

- Ya-Dong Wu, Abdullah Khalid, Masoud Habibidavijani, and Barry C. Sanders. Quantum Summoning. Quantum Alberta Workshop 2018. Calgary, Canada. 18 July 2018.
- Ish Dhand, Abdullah Khalid, He Lu, Hubert de Guise and Barry C. Sanders, Characterization and simulation of linear optics. 19th Conference on Quantum Information Processing. Banff, Canada. 11-15 January 2016.
- Ish Dhand, Abdullah Khalid, He Lu and Barry C. Sanders, Accurate and precise characterization of linear optical interferometers. Canadian Summer School on Quantum Information 2015. University of Toronto, Toronto, Canada. 10-14 August 2015.
- Abdullah Khalid and Hassan Bukhari, Domestic Concentrated Solar Thermal Co-generation Plants for Pakistan. Conference on Pakistan's Energy Options: Technology, Availability, Affordability, and the Role of Regional Grids. Islamabad, Pakistan. 20-21 March, 2012.

Conferences

- Conference on Quantum Information and Quantum Control VII, The Fields Institute, University of Toronto, Toronto, Canada, 28 August - 1 September, 2017.
- 19th Conference on Quantum Information Processing, Banff, Canada, 11-15 January 2016.
- Theory Canada 10, University of Calgary, Canada, 11-13 June 2015.
- The 6th International Conference on Post-Quantum Cryptography. University of Waterloo, Waterloo, Canada, 1-3 October 2014.
- National Symposium on Quantum Information Processing. COMSATS Institute of Information Technology, Islamabad, Pakistan. 9 April 2011.
- Conference on General Relativity and Gravitation. Punjab University, Lahore, Pakistan. 11-13 February 2010.

Technical Workshops and Summer Schools

- Quantum Information Summer School 2019. Institute of Business Administration, Karachi, Pakistan. 15-18 July 2019.
- Post-Quantum Cryptography. University of Waterloo, Waterloo, Canada. 24-27 July 2017.
- Quantum Key Distribution Summer School. University of Waterloo, Waterloo, Canada. 17-21 August 2015.
- Canadian Summer School on Quantum Information 2015. University of Toronto, Toronto, Canada. 10-14 August 2015.
- Post-Quantum Cryptography Summer School 2015. University of Waterloo, Waterloo, Canada. 29-30 September 2014.

Professional Development Workshops

- Advanced Lean Canvas & Entrepreneurship Workshop (BE606 for IQC). University of Waterloo, Waterloo, Canada. 22 July 2017.
- Commercialization & Entrepreneurship (BE606 for IQC). University of Waterloo, Waterloo, Canada. 20-21 July 2017.
- Intellectual Property Protection & Management (BE606 for IQC). University of Waterloo, Waterloo, Canada. 17-18 July 2017.
- Leadership, Communication, & Project Management (BE 600 for IQC). University of Waterloo, Waterloo, Canada. 6-14 July 2017.
- Foundations of Project Management I. University of Waterloo, Waterloo, Canada. 27-28 August 2015.
- Standards and Certification Course 2015. University of Waterloo, Waterloo, Canada. 24-25 August 2015.

Teaching Assistantships

- PHYS 259 Electricity and Magnetism, Winter 2018. Department of Physics and Astronomy, University of Calgary, Canada.
- PHYS 365 - Acoustics, Optics and Modern Physics, Fall 2017 (lead TA). Department of Physics and Astronomy, University of Calgary, Canada.
- PHYS 259 Electricity and Magnetism, Winter 2017 (lead TA). Department of Physics and Astronomy, University of Calgary, Canada.
- PHYS 259 Electricity and Magnetism, Winter 2016. Department of Physics and Astronomy, University of Calgary, Canada.
- PHYS 211/221 Mechanics, Fall 2014. Department of Physics and Astronomy, University of Calgary, Canada.
- PHYS 259 Electricity and Magnetism, Winter 2014. Department of Physics and Astronomy, University of Calgary, Canada.
- PHYS 211/221 Mechanics, Fall 2013. Department of Physics and Astronomy, University of Calgary, Canada.
- PHY 101 Mechanics, Fall 2011. Department of Physics. Lahore University of Management Sciences, Lahore, Pakistan.
- PHY 101 Electricity and Magnetism, Spring 2011. Department of Physics. Lahore University of Management Sciences, Lahore, Pakistan.
- Calculus 1, Fall 2010. University of Engineering and Technology, Lahore, Pakistan.

Awards

- Alumni Association Award for best Graduate Teaching Assistant in the Department of Physics and Astronomy 2018. Faculty of Science, University of Calgary, Calgary, Canada.
- Departmental Graduate Student Excellence Award 2018. Department of Physics and Astronomy, University of Calgary, Calgary, Canada.

- Departmental Graduate Student Excellence Award 2017. Department of Physics and Astronomy, University of Calgary, Calgary, Canada.
- Departmental Graduate Student Excellence Award 2015. Department of Physics and Astronomy, University of Calgary, Calgary, Canada.
- Departmental Graduate Student Excellence Award 2014. Department of Physics and Astronomy, University of Calgary, Calgary, Canada.

Public Outreach

- Organizer and backend support for QSilver7 organized by QPakistan. 3-8 June, 2022.
- Organizer and workshop leader at QTraining4 for QSilver. 21 March - 3 April, 2022.
- Are Quantum Computers Faster Than Classical Computers? School of Mathematics and Computer Science public seminar series, Institute of Business Administration, Karachi, Pakistan. 12 November 2021.
- Backend support for QCourse511-1 Quantum Computing and Programming. 13 September - 14 January, 2021.
- Organizer and workshop leader at QWorld Quantum Summer School. 26 July - 8 August, 2021.
- Guest on Out Of The Box Podcast, Episode title "Science, Philosophy and Life". Maati TV, Lahore, Pakistan. 16 July 2021. <https://www.youtube.com/watch?v=YzqxKQf4Vo0>
- Organizer and workshop leader at QSilver2. 17-22 May, 2020.
- Organizer and workshop leader at QSilver Pilot, 11-17 April, 2020.
- Mentor at QBronze46. 23-28 November, 2020.
- Organizer and workshop lead, QBronze38, Pakistan. 2-6 November, 2020.
- How to start a quantum computing startup in Pakistan. Talk at Code.Play("4.0"), Habib University, Karachi, Pakistan. 12 January 2020.
- Radio interview on On the Line with Zuha. Runway Radio, Habib University, Karachi, Pakistan. 28 November 2019.
- Google just built a quantum computer(?), and Pakistan is sitting ducks! How to prepare for the coming quantum computing age. Talk at Guftugu Seminar Series, Habib University, Pakistan. 11 November 2019.
- The Race To Demonstrate Quantum Supremacy, And Onward To Quantum Computers. Talk organized by Artificial Intelligence Club, Habib University, Pakistan. 5 November 2019.
- Pakistan, quantum computing and cryptography. Talk at Science ka Adaa at The Second Floor, Karachi, Pakistan. 3 October 2019. <https://www.youtube.com/watch?v=mYGIm3eD8x8>

Programming Skills and Knowledge

- Mathematica, Matlab (extensive knowledge)
- Python (solid knowledge)

- Linux shell (fair knowledge)
- Qiskit, cirq and other quantum computing sdks (well versed to familiar)

References (research)

- Barry C. Sanders (doctoral advisor), Professor of Physics
University of Calgary, Calgary, Canada
sandersb@ucalgary.ca

- Hubert de Guise, Professor of Physics
Lakehead University, Thunder Bay, Canada
hdeguise@lakeheadu.ca

References (teaching)

- David Knudsen, Professor of Physics
University of Calgary, Calgary, Canada
knudsen@ucalgary.ca

- Anzar Khaliq, Associate Dean and Associate Professor
Habib University, Karachi, Pakistan
anzar.khaliq@sse.habib.edu.pk