

# CURRICULUM VITAE

## Sevag Gharibian

*Professor (W2)*

Department of Computer Science  
Institute for Photonic Quantum Systems  
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Web: <https://groups.uni-paderborn.de/fg-qi/index.html>



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## RESEARCH INTERESTS

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*Theoretical computer science:* Classical and quantum algorithms and complexity theory

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## EMPLOYMENT

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Professor (W2) Department of Computer Science, Paderborn University (UPB), Germany	2021 – present
Junior Professor (W1) Department of Computer Science, Paderborn University (UPB), Germany	2018 – 2021
Assistant Professor Department of Computer Science, Virginia Commonwealth University (VCU), USA	2014 – 2018
Simons Postdoctoral Fellow Simons Institute for the Theory of Computing, University of California, Berkeley, USA Adviser: Dr. Umesh Vazirani	Jan – May 2014
NSERC Banting Postdoctoral Fellow Computer Science Division, University of California, Berkeley, USA Adviser: Dr. Umesh Vazirani	2013 – 2014
Visiting Lecturer Department of Computer Science, University of Illinois (UIC), Chicago, USA	Aug – Dec 2012
Research and Teaching Assistant Department of Computer Science, University of Waterloo, Canada	2006 – 2012
Software developer Embarcadero Technologies, Toronto, Canada	2005 – 2006
Software developer Positions with 5 software companies as co-op student	2001 – 2004

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## EDUCATION

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Ph.D. in Computer Science, University of Waterloo, Canada Thesis: “Approximation, proof systems, and correlations in a quantum world” Supervisor: Dr. Richard Cleve	2008 – 2012
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Master of Mathematics, University of Waterloo, Canada	2006 – 2008
Thesis: “On the hardness of the quantum separability problem and the global power of locally invariant unitary operations”	
Supervisor: Dr. Richard Cleve	
Bachelor of Computer Science, Co-op, University of Waterloo, Canada	2000 – 2005

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## GRANTS

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- Bundesministerium für Bildung und Forschung (BMBF) 2022 – 2026  
Title: “Photonic Quantum Computers (PhoQuant)”  
Role: Co-PI at UPB (multi-institution grant)
- State of North Rhine-Westphalia 2021 – 2024  
Title: “Photonic Quantum Computing (PhoQC)”  
Role: Co-PI at UPB
- Bundesministerium für Bildung und Forschung (BMBF) – 13N16224 2022 – 2025  
Title: “Professional training for platform-independent and photonic quantum computing”  
Role: Lead PI at UPB (multi-institution grant, led by University of Jena)
- Deutsche Forschungsgemeinschaft (DFG) – 450041824 2021 – 2024  
Title: “Characterizing the complexity of physical quantum problems with oracle complexity classes”
- Deutsche Forschungsgemeinschaft (DFG) – 432788384 2020 – 2023  
Title: “The Quantum Satisfiability Problem: Algorithms & Complexity-Theoretic Hardness”
- U.S. Department of Energy (DOE) 2017 – 2018  
Title: “Quantum Algorithms from the Interplay of Simulation, Optimization, and Machine Learning”  
Role: Lead PI at VCU (multi-institution grant, led by Sandia Labs)
- National Science Foundation (NSF) CCF-1745134 2017 – 2018  
Title: “QIP 2018 Student and Postdoctoral Fellow Travel Funding Support”
- National Science Foundation (NSF) CCF-1617710 2016 – 2019  
Title: “AF: Small: Approximation algorithms for quantum mechanical problems”
- National Science Foundation (NSF) CCF-1526189 2015 – 2018  
Title: “AF: Small: Exact algorithms for the quantum satisfiability problem.”
- Dean’s Undergraduate Research Initiative, VCU School of Engineering 2015

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**FELLOWSHIPS AND SCHOLARSHIPS**


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- NSERC Banting Postdoctoral Fellowship 2013 – 2015  
 Details: NSERC’s top postdoctoral fellowship. Only 23 awarded annually, 6 of which can be taken up outside of Canada (as in my case).
- NSERC Postdoctoral Fellowship, declined 2013 – 2015
- NSERC CGS Michael Smith Foreign Study Supplement 2010 – 2011
- European Union-Canada Exchange Scholarship 2010 – 2011
- NSERC Alexander Graham Bell Canada Graduate Scholarship 2010 – 2012
- President’s Graduate Scholarship, University of Waterloo 2010 – 2012
- Ontario Graduate Scholarship, declined 2010 – 2012
- David R. Cheriton Graduate Scholarship 2009 – 2011
- Graduate Entrance Scholarship, University of Waterloo 2006
- Ontario Graduate Scholarship in Science and Technology 2006 – 2007
- Tro Najarian Memorial Scholarship, Armenian Relief Society 2005
- Cognos Scholarship, Cognos Inc. 2001 – 2002

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**AWARDS/DISTINCTIONS**


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- Good Practices Digital Teaching Distinction, UPB 2020
- Undergraduate Research Opportunities Faculty Mentor Award, VCU 2017
- Student Choice Award for Computer Science Faculty of the Year, VCU 2017
- Teaching Excellence Award, Department of Computer Science, VCU 2016, 2017
- Achievement Award, Institute for Quantum Computing, University of Waterloo 2012
- Best Poster Award, 14<sup>th</sup> Workshop on Quantum Information Processing (QIP) 2011
- 2<sup>nd</sup> Place for Best Speaker, 5<sup>th</sup> Canadian Quantum Information Students' Conference, 2008  
 Université de Montréal, Canada

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**RESEARCH**


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**Preprints**

1. S. Gharibian, C. Hecht. Hardness of approximation for ground state problems. arXiv:2411.04874.
2. F. Huber, K. Thompson, O. Parekh, S. Gharibian. Second order cone relaxations for quantum Max Cut. arXiv:2411.04120.
3. H. Buhrman, S. Gharibian, Z. Landau, F. le Gall, N. Schuch and S. Tamaki. Beating Grover search for low-energy estimation and state preparation. arXiv:2407.03073, 2024.

**Conference Proceedings (in reverse chronological order)**

1. D. Rudolph, S. Gharibian, D. Nagaj. Quantum 2-SAT on low dimensional systems is QMA1-complete: Direct embeddings and black-box simulation. To appear in ITCS 2025.

2. A. Agarwal, S. Gharibian, V. Koppula, D. Rudolph. Quantum Polynomial Hierarchies: Karp-Lipton, error reduction, and lower bounds. *Proceedings of 49<sup>th</sup> International Symposium on Mathematical Foundations of Computer Science (MFCS)*, volume 306, 7:1-7:17, 2024.
3. S. Gharibian, J. Kamminga. BQP, meet NP: Search-to-decision reductions and approximate counting. *Proceedings of the 51<sup>st</sup> EATCS International Colloquium on Automata, Languages and Programming (ICALP)*, volume 297, 70:1-70:19, 2024.
4. L. Bittel, S. Gharibian, M. Kliesch. Optimizing the depth of variational quantum algorithms is strongly QCMA-hard to approximate. *Proceedings of the 38<sup>th</sup> Computational Complexity Conference (CCC)*, volume 264, 34:1-34:24, 2023.
5. C. Cade, M. Folkertsma, S. Gharibian, R. Hayakawa, F. Le Gall, T. Morimae, J. Weggemans. Improved Hardness Results for the Guided Local Hamiltonian Problem. *Proceedings of the 50<sup>th</sup> EATCS International Colloquium on Automata, Languages and Programming (ICALP)*, volume 261, 31:1-32:19, 2023.
4. S. Gharibian, D. Rudolph. Quantum space, ground space traversal, and how to embed multi-prover interactive proofs into unentanglement. *Proceedings of the 14th Innovations in Theoretical Computer Science (ITCS)*, volume 251, 53:1-53:23, 2023.
5. Watson, J. Bausch, S. Gharibian. The complexity of translationally invariant problems beyond ground state energies. *Proceedings of the 40th International Symposium on Theoretical Aspects of Computer Science (STACS)*, volume 254, 54:1–54:21, 2023.
6. S. Gharibian, F. Le Gall. Dequantizing the Quantum Singular Value Transformation: Hardness and applications to quantum chemistry and the quantum PCP conjecture. *Proceedings of the 54th Annual ACM Symposium on Theory of Computing (STOC)*, pages 19-32, 2022.
7. S. Gharibian and D. Rudolph. On polynomially many queries to NP or QMA oracles. *Proceedings of the 13<sup>th</sup> Innovations in Theoretical Computer Science (ITCS)*, volume 215, pages 75:1-75:27, 2022. Full version at arXiv:2111.02296.
8. A. Broadbent, S. Gharibian and H.-S. Zhou. Towards quantum one-time memories from stateless hardware. *Proceedings of the 15th Conference on the Theory of Quantum Computation, Communication and Cryptography (TQC)*, volume 158, pages 6:1-6:25, 2020.
9. S. Gharibian, S. Piddock and J. Yirka. Oracle complexity classes and local measurements on physical Hamiltonians. *Proceedings of the 37<sup>th</sup> Symposium on Theoretical Aspects of Computer Science (STACS)*, volume 154, pages 20:1-20:37, 2020.
10. S. Gharibian and O. Parekh. Almost optimal classical approximation algorithms for a quantum generalization of Max-Cut. *Proceedings of the 22<sup>nd</sup> International Workshop on Approximation Algorithms for Combinatorial Optimization Problems (APPROX)*, volume 145, pages 31:1-31:17, 2019.
11. S. Gharibian, M. Santha, J. Sikora, A. Sundaram and J. Yirka. Quantum generalizations of the polynomial hierarchy with applications to QMA(2). *Proceedings of 43<sup>rd</sup> International*

- Symposium on Mathematical Foundations of Computer Science (MFCS)*, volume 117, pages 58:1-58:16, 2018.
12. M. Aldi, N. de Beaudrap, S. Gharibian and S. Saeedi. On efficiently solvable cases of Quantum  $k$ -SAT. *Proceedings of 43<sup>rd</sup> International Symposium on Mathematical Foundations of Computer Science (MFCS)*, volume 117, pages 38:1-38:16, 2018.
  13. S. Gharibian and J. Yirka. The complexity of simulating local measurements on quantum systems. *Proceedings of the 12th Conference on the Theory of Quantum Computation, Communication and Cryptography (TQC 2017)*, volume 73, pages 2:1-2:17, 2018.
  14. N. de Beaudrap and S. Gharibian. A linear time algorithm for quantum 2-SAT. *Proceedings of the 31<sup>st</sup> Conference on Computational Complexity (CCC)*, volume 50, pages 27:1-27:21, 2016.
  15. S. Gharibian, J. Sikora. Ground state connectivity of local Hamiltonians. *Proceedings of the 42<sup>nd</sup> International Colloquium on Automata, Languages and Programming (ICALP)*, volume 9134, pages 617 – 628, 2015.
  16. S. Gharibian and J. Kempe. Hardness of approximation for quantum problems. *Proceedings of the 39<sup>th</sup> International Colloquium on Automata, Languages and Programming (ICALP)*, pages 387-398, Springer, 2012.
  17. S. Gharibian and J. Kempe. Approximation algorithms for QMA-complete problems. *Proceedings of the 26<sup>th</sup> IEEE Conference on Computational Complexity (CCC)*, 178-188, 2011.
  18. D. Bruß, S. Gharibian, and H. Kampermann. Revealing quantum entanglement via locally noneffective operations. *Proceedings of 3rd International Symposium on Quantum Interaction (QI)*, pages 3-5, 2009.

### **Journal Publications (in reverse chronological order)**

1. (Invited) S. Gharibian. Guest Column: The 7 faces of quantum NP. *ACM SIGACT News*, 54(4):54-91, 2024.
2. S. Gharibian, F. Le Gall. Dequantizing the Quantum Singular Value Transformation: Hardness and applications to quantum chemistry and the quantum PCP conjecture. *SIAM Journal on Computing*, 54(4), 2023.
3. S. Gharibian, M. Santha, J. Sikora, A. Sundaram and J. Yirka. Quantum generalizations of the polynomial hierarchy with applications to QMA(2). *Computational Complexity*, 31(13), 2022.
4. A. Broadbent, S. Gharibian and H.-S. Zhou. Towards quantum one-time memories from stateless hardware. *Quantum*, 5:429, 2021.
5. M. Aldi, N. de Beaudrap, S. Gharibian and S. Saeedi. On efficiently solvable cases of Quantum  $k$ -SAT. *Communications in Mathematical Physics*, 381:209-256, 2021. (Open access version published at [doi.org/10.1007/s00220-020-03843-9](https://doi.org/10.1007/s00220-020-03843-9), 2020.)
6. S. Gharibian and J. Yirka. The complexity of simulating local measurements on quantum systems. *Quantum*, 3:189, 2019.

7. S. Gharibian, J. Sikora. Ground state connectivity of local Hamiltonians. *ACM Transactions on Computation Theory*, 10 (2), 2018.
8. S. Gharibian, Y. Huang, Z. Landau, S. W. Shin. Quantum Hamiltonian Complexity. *Foundations and Trends in Theoretical Computer Science*, 10 (3):159-282, 2015.
9. S. Gharibian, Z. Landau, S. W. Shin, and G. Wang. Tensor network non-zero testing. *Quantum Information & Computation* 15 (9 & 10):885-899, 2015.
10. S. Gharibian and J. Kempe. Hardness of approximation for quantum problems. *Quantum Information & Computation* 14 (5 & 6): 517-540, 2014.
11. D. Berry, R. Cleve and S. Gharibian. Gate-efficient discrete simulations of continuous-time quantum query algorithms. *Quantum Information & Computation* 14 (1 & 2): 1-30, 2014.
12. S. Gharibian, J. Sikora, and S. Upadhyay. QMA variants with polynomially many provers. *Quantum Information & Computation* 13(1 & 2):0135-0157, 2013.
13. S. Gharibian and J. Kempe. Approximation algorithms for QMA-complete problems. *SIAM Journal on Computing* 41(4): 1028-1050, 2012.
14. S. Gharibian. Quantifying non-classicality with local unitary operations. *Physical Review A* 86:042106, 2012.
15. M. Piani, S. Gharibian, G. Adesso, J. Calsamiglia, P. Horodecki and A. Winter. All non-classical correlations can be activated into distillable entanglement. *Physical Review Letters* 106: 220403, 2011.
16. S. Gharibian, M. Piani, G. Adesso, J. Calsamiglia, P. Horodecki. Characterizing quantumness via entanglement creation. *International Journal of Quantum Information* 9(7 & 8):1701-1713, 2011.
17. S. Gharibian. Strong NP-hardness of the quantum separability problem. *Quantum Information & Computation* 10(3 & 4): 343-360, 2010.
18. S. Gharibian, H. Kampermann, and D. Bruß. On global effects caused by locally noneffective unitary operations. *Quantum Information & Computation* 9(11 & 12): 1013-1029, 2009.
19. A. Datta and S. Gharibian. Signatures of non-classicality in mixed-state quantum computation. *Physical Review A* 79:042325, 2009.

### **Invited Conference/Workshop Talks (in reverse chronological order, grouped by paper/topic)**

1. (Upcoming) S. Gharibian. Let there be quantum complexity theory, all in two days. Invited set of lectures at Imperial College London Mathematics department, 2025.
2. S. Gharibian. Quantum algorithms meets complexity theory: Recent crossing points on the road to practical quantum algorithms. Photonics Days, Berlin, 2024.
3. S. Gharibian. Quantum algorithms – what’s quantum complexity theory got to do with it?
  - 49th International Conference on Current Trends in Theory and Practice of Computer Science (SOFSEM), 2024.

- Arcticque PhoQS Summer School, Institute for Photonic Quantum Computing (PhoQS), Paderborn, 2024.
  - Quantum Techniques in Machine Learning (QTML), CERN, Switzerland, 2023.
4. L. Bittel, S. Gharibian, M. Kliesch. The optimal depth of variational quantum algorithms is QCMA-hard to approximate.
    - APS March Meeting, USA, 2024.
    - Frontiers of near-term quantum computing, Chalmers University, Sweden, 2023.
    - 18<sup>th</sup> Central European Quantum Information Processing workshop (CEQIP), Slovakia, 2023
    - Workshop on Quantum Information, Focus Semester on Quantum Information, Saarland University, Germany, 2022.
  5. (Plenary) S. Gharibian. On the complexity of many-body quantum systems, Matter and Light for Quantum Computing (ML4Q) Excellence Cluster Conference, Germany, 2022.
  6. S. Gharibian. Workshop on semidefinite and polynomial optimization, Centrum Wiskunde & Informatica (CWI), Netherlands, 2022.
  7. S. Gharibian. A gentle introduction to quantum complexity theory. Bad Honnef Physics School on Quantum Computing, Germany, 2022.
  8. S. Gharibian, F. le Gall. Dequantizing the Quantum Singular Value Transformation: Hardness and Applications to Quantum Chemistry and the Quantum PCP Conjecture.
    - Quantum and lattices joint reunion workshop, Simons Institute for the Theory of Computing, UC Berkeley, 2022.
    - 4th Munich Conference on Quantum Science and Technology, Germany, 2022.
    - 11<sup>th</sup> Heinz Nixdorf Symposium, Paderborn, Germany, 2022.
  9. S. Gharibian. A gentle introduction to quantum proofs. Workshop on The Multiple Facets of Quantum Proofs, 54th Annual ACM Symposium on Theory of Computing (STOC 2022).
  10. S. Gharibian. A gentle introduction to quantum complexity theory. Bad Honnef Physics School on Quantum Computing, Germany, 2022.
  11. S. Gharibian. Reconfiguration in the quantum setting. Workshop on Combinatorial Reconfiguration, Banff International Research Station, Canada, 2022.
  12. S. Gharibian. Educating the Future Quantum Information Workforce: The Pedagogy of Quantum Technologies Workshop, Quantum Initiative, University of South Florida, USA, 2021.
  13. S. Gharibian. What might a quantum computer be good for? 2021 German-American Frontiers of Engineering Symposium, Oak Ridge National Laboratory, USA, 2021.

14. J. D. Watson, J. Bausch, S. Gharibian. The complexity of translationally invariant problems beyond ground state energies. Quantum Software and Optimisation online workshop, Chalmers University of Technology, Sweden, 2021.
15. S. Gharibian. An introduction to Quantum Complexity Theory. Dagstuhl Seminar 20385, “Algebraic and Other Aspects of Complexity Theory”. Schloss Dagstuhl, Germany, 2020.
16. S. Gharibian. The Quantum Approximate Optimization Algorithm. Mini-Workshop on Mixers for QAOA, Chalmers University of Technology, Sweden, 2020.
17. S. Gharibian, M. Santha, J. Sikora, A. Sundaram and J. Yirka. Quantum generalizations of the polynomial hierarchy with applications to QMA(2). Quantum Innovators Workshop, Institute for Quantum Computing, University of Waterloo, Canada, 2018.
18. M. Aldi, N. de Beaudrap, S. Gharibian and S. Saeedi. On efficiently solvable cases of Quantum k-SAT. Dagstuhl Seminar 18391, “Algebraic Methods in Computational Complexity”. Schloss Dagstuhl, Germany, 2018.
19. A. Broadbent, S. Gharibian, and H.-S. Zhou. Towards quantum one-time memories from stateless hardware. 18<sup>th</sup> Asian Quantum Information Science Conference (AQIS 2018) Satellite Workshop on Quantum Computing, Kyoto University, Japan, 2018.
20. S. Gharibian, Y.-K. Liu. Classical approximation algorithms for quantum constraint satisfaction problems.
  - SIAM Conference on Optimization, Vancouver, Canada, 2017.
  - Canadian Mathematical Society (CMS) Winter Meeting, Canada, 2016.
  - Semidefinite and Matrix Methods for Optimization and Communication, National University of Singapore, Singapore, 2016.
21. S. Gharibian, J. Sikora. Ground state connectivity of local Hamiltonians.
  - Workshop around BQP, Tokyo Institute of Technology (Tamachi Campus), Japan, 2015.
  - Quantum Hamiltonian Complexity Reunion Workshop, Simons Institute for the Theory of Computing, University of California, Berkeley, 2015.
22. S. Gharibian, J. Kempe. Hardness of approximation for quantum problems. ELC Workshop on Inapproximability, University of Electro-Communications, Chofu, Japan, 2014.
23. S. Gharibian. Quantifying non-classicality with local unitary operations. Mini-Workshop on the General Quantumness of Correlations, University of Waterloo, Canada, 2012.
24. S. Gharibian and J. Kempe. Approximation algorithms for QMA-complete problems. Canadian Institute for Advanced Research (CIFAR) Quantum Information Processing meeting, Hot Topics Session, 2011.
25. D. Bruß, S. Gharibian, and H. Kampermann. Revealing quantum entanglement via locally noneffective operations. 3rd International Symposium on Quantum Interaction (QI), 2009.



**Contributed Talks (in reverse chronological order, grouped by paper)**

1. D. Rudolph, S. Gharibian, D. Nagaj. Quantum 2-SAT on low dimensional systems is QMA1-complete: Direct embeddings and black-box simulation. ITCS 2025.
2. A. Agarwal, S. Gharibian, V. Koppula, D. Rudolph. Quantum Polynomial Hierarchies: Karp-Lipton, error reduction, and lower bounds. MFCS 2024.
3. M. Aldi, S. Gharibian, D. Rudolph. Quantum complexity theory meets TFNP: Product Quantum Satisfiability on qudits. TQC 2024.
4. D. Rudolph, S. Gharibian, D. Nagaj. Quantum 2-SAT on low dimensional systems is QMA1-complete: Direct embeddings and black-box simulation. TQC 2024.
5. Gharibian, J. Kamminga. BQP, meet NP: Search-to-decision reductions and approximate counting. ICALP 2024.
6. L. Bittel, S. Gharibian, M. Kliesch. Optimizing the depth of variational quantum algorithms is strongly QCMA-hard to approximate. CCC 2023, QIP 2023.
7. S. Gharibian, R. Hayakawa, F. Le Gall, T. Morimae. Improved Hardness Results for the Guided Local Hamiltonian Problem. ICALP 2023, QIP 2023.
8. Watson, J. Bausch, S. Gharibian. The complexity of translationally invariant problems beyond ground state energies. STACS 2023.
9. S. Gharibian and D. Rudolph. Quantum space, ground space traversal, and how to embed multi-prover interactive proofs into unentanglement. ITCS 2023, QIP 2022.
10. S. Gharibian, F. Le Gall. Dequantizing the Quantum Singular Value Transformation: Hardness and applications to quantum chemistry and the quantum PCP conjecture. STOC 2022, QIP 2022.
11. S. Gharibian and D. Rudolph. On polynomially many queries to NP or QMA oracles. ITCS 2022, TQC 2022.
12. J. D. Watson, J. Bausch, S. Gharibian. The complexity of translationally invariant problems beyond ground state energies. TQC 2021, Workshop on Combinatorial Reconfiguration (CORE 2021, affiliated with ICALP 2021).
13. A. Broadbent, S. Gharibian and H.-S. Zhou. Towards quantum one-time memories from stateless hardware. TQC 2020.
14. S. Gharibian, S. Piddock and J. Yirka. Oracle complexity classes and local measurements on physical Hamiltonians. STACS 2020, QIP 2020. Preliminary version at AQIS 2018.
15. S. Gharibian and O. Parekh. Almost optimal classical approximation algorithms for a quantum generalization of Max-Cut. APPROX 2019, QIP 2020, and KOLKOM 2019.
16. S. Gharibian, M. Santha, J. Sikora, A. Sundaram and J. Yirka. Quantum generalizations of the polynomial hierarchy with applications to QMA(2). Plenary talk at AQIS 2018, MFCS 2018.

17. M. Aldi, N. de Beaudrap, S. Gharibian and S. Saeedi. On efficiently solvable cases of Quantum k-SAT. Plenary talk at AQIS 2018, MFCS 2018, KOLKOM 2018.
18. S. Gharibian and J. Yirka. The complexity of estimating local physical quantities. TQC 2017.
19. N. de Beaudrap and S. Gharibian. A linear time algorithm for quantum 2-SAT. CCC 2016, QIP 2016.
20. S. Gharibian and J. Sikora. Ground state connectivity of local Hamiltonians. ICALP 2015.
21. S. Gharibian, Z. Landau, S. W. Shin, and G. Wang. Tensor network non-zero testing. Long talk at AQIS 2014.
22. S. Gharibian and J. Kempe. Hardness of approximation for quantum problems. ICALP 2012, QIP 2012.
23. D. Berry, R. Cleve and S. Gharibian. Gate-efficient discrete simulations of continuous-time quantum query algorithms. QIP 2012, AQIS 2012.
24. S. Gharibian and J. Kempe. Approximation algorithms for QMA-complete problems. CCC 2011.
25. S. Gharibian. Strong NP-hardness of the quantum separability problem. SQuInT 2009.
26. S. Gharibian. Strong NP-hardness of the quantum separability problem. 5<sup>th</sup> Canadian Quantum Information Students' Conference (CQISC 2008).

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## MENTORING & SUPERVISION

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### Junior Research Group Leader:

Zahra Raissi, UPB 2022 – present

### Postdocs:

Hamid Reza Naeij, UPB 2024 – present

Qiuting Chen, UPB 2023 – present

Lial Khaluf, UPB 2023 – present

### Ph.D. Students:

Dhruva Sambrani, UPB 2023 – present

Carsen Hecht, UPB 2023 – present

Giwrgos Karaiskos, UPB 2022 – present

Jonas Kamminga, UPB 2022 – present

Dorian Rudolph, UPB 2021 – present

Jianqiang Li, VCU 2016 – 2018

Seyran Saeedi, VCU 2015 – 2018

### Masters Students:

Dennis Nolte, UPB	2022 – 2023
Carsten Hecht, UPB	2021 – 2022
Daniel Warkentin, UPB	2020 – 2022
Jannes Stubbemann, UPB	2018 – 2020
Dorian Rudolph, UPB	2020
<ul style="list-style-type: none"> <li>• Recipient of UPB Outstanding Thesis Award</li> </ul>	

### Undergraduate Students:

Simon-Luca Kremer, UPB	2023 – 2024
Avantika Agarwal, IIT Delhi	2022
<ul style="list-style-type: none"> <li>• Recipient of DAAD Wise Fellowship</li> </ul>	
Alexander Schnelle, UPB	2020 – 2021
Justin Yirka, VCU	2015 – 2018
Aidan Collins, VCU	2014 – 2015

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## TEACHING

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### Teaching Experience

#### *Course Instructor:*

- Fundamental Algorithms, UPB 2018 – 2024
- Introduction to Quantum Computation, UPB 2018 – 2024
- Quantum Complexity Theory, UPB 2019 – 2024
- Data Structures and Algorithms (in German), UPB 2022, 2023
- Quantum Algorithms, UPB 2021
- Seminar: Modern Approaches to Network Flow Problems, UPB 2021
- Seminar: Quantum Computation, UPB 2019, 2020, 2021
- Proseminar: Advanced algorithms, in theory, UPB 2021
- CMSC 303 Introduction to the Theory of Computation, VCU 2015, 2016, 2017
- CMSC 691 Convex Optimization, VCU 2016
- CMSC 491 Introduction to Quantum Computation and Information, VCU 2015
- CS 401 Computer Algorithms I, University of Illinois, Chicago 2012
- CS 301 Languages and Automata, University of Illinois, Chicago 2012

### Teaching Certifications

Certificate in University Teaching, University of Waterloo	2012
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## SERVICE

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### International and National Service

#### *Conference Committees*

**Steering Committee/Board of Trustees**

International Colloquium on Automata, Languages and Programming (ICALP) 2023 – 2024  
 Secretary, Computational Complexity Conference (CCC) 2016 – 2018

**Organizing Committee**

Chair, International Colloquium on Automata, Languages and Programming (ICALP) 2023  
 Chair, Dagstuhl Seminar 20311: Quantum Complexity: Theory and Application 2021  
 Co-chair, Mini-Workshop on Cryptography, VCU 2014

**Program Committee**

Annual Conference on Quantum Information Processing (QIP) 2023, 2025  
 Quantum Software Engineering Meetup (QSE) 2025  
 Conference on Theory of Quantum Computation, Communication and Cryptography (TQC) 2015, 2016, 2023  
 International Colloquium on Automata, Languages and Programming (ICALP) 2022  
 International Symposium on Algorithms and Computation (ISAAC) 2017  
 Asian Quantum Information Science Conference (AQIS) 2017

**Student Travel Awards Committee**

Annual Conference on Quantum Information Processing (QIP) 2016 – 2018  
 Proceedings, Record Keeping, and Registration Subcommittees 2014  
 IEEE Conference on Computational Complexity (CCC)

***Journal Editorial Boards***

Coordinating Editor, *Quantum* 2021 – present  
 Founding Editor, *Quantum* 2016 – 2021

***Strategic Funding Committees***

DFG Priority Program “Algorithms and Software for Quantum Computing” (SPP2514) 2023

***Newspaper interviews***

Die Zeit, “*Die Mathematiker der Tafelrunde*” 2020  
 Major German national weekly newspaper, topic: Quantum interactive proofs

**University Service*****Committees/Organizational Roles***

- Board of Directors, Institute for Photonic Quantum Systems (PhoQS) 2024 – present
- Faculty Council, Paderborn University 2024 – present
- Coordinator, International Student Exchange Programs, Paderborn University 2019 – 2023
- Chair, PhoQS Quantum Seminar Series, UPB 2019 – 2020
- Chair, Master Teacher Task Force, School of Engineering, VCU 2017
- Chair, Computer Science Day, VCU 2014 – 2017

Details: Outreach event for high school students, 68 attendees from Virginia in 2017