

Martin Roetteler

List of Publications by Year in descending order

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Version: 2024-02-01

53
papers

2,154
citations

394421

19
h-index

454955

30
g-index

55
all docs

55
docs citations

55
times ranked

1557
citing authors

| # | ARTICLE | IF | CITATIONS |
|----|---|------|-----------|
| 1 | A Meet-in-the-Middle Algorithm for Fast Synthesis of Depth-Optimal Quantum Circuits. IEEE Transactions on Computer-Aided Design of Integrated Circuits and Systems, 2013, 32, 818-830. | 2.7 | 328 |
| 2 | Experimental comparison of two quantum computing architectures. Proceedings of the National Academy of Sciences of the United States of America, 2017, 114, 3305-3310. | 7.1 | 326 |
| 3 | Q#. , 2018, , . | | 148 |
| 4 | Quantum Computer Systems for Scientific Discovery. PRX Quantum, 2021, 2, . | 9.2 | 142 |
| 5 | Applying Grover's Algorithm to AES: Quantum Resource Estimates. Lecture Notes in Computer Science, 2016, , 29-43. | 1.3 | 110 |
| 6 | Quantum Resource Estimates for Computing Elliptic Curve Discrete Logarithms. Lecture Notes in Computer Science, 2017, , 241-270. | 1.3 | 96 |
| 7 | Quantum computing enhanced computational catalysis. Physical Review Research, 2021, 3, . | 3.6 | 96 |
| 8 | Implementing Grover Oracles for Quantum Key Search on AES and LowMC. Lecture Notes in Computer Science, 2020, , 280-310. | 1.3 | 88 |
| 9 | Efficient Synthesis of Universal Repeat-Until-Success Quantum Circuits. Physical Review Letters, 2015, 114, 080502. | 7.8 | 87 |
| 10 | Factoring with qutrits: Shor's algorithm on ternary and metaplectic quantum architectures. Physical Review A, 2017, 96, . | 2.5 | 64 |
| 11 | Downfolding of many-body Hamiltonians using active-space models: Extension of the sub-system embedding sub-algebras approach to unitary coupled cluster formalisms. Journal of Chemical Physics, 2019, 151, 014107. | 3.0 | 57 |
| 12 | Factoring using $2n+2$ qubits with Toffoli based modular multiplication. Quantum Information and Computation, 2017, 17, 673-684. | 0.3 | 44 |
| 13 | Quantum programming languages. Nature Reviews Physics, 2020, 2, 709-722. | 26.6 | 42 |
| 14 | Efficient synthesis of probabilistic quantum circuits with fallback. Physical Review A, 2015, 91, . | 2.5 | 39 |
| 15 | A note on quantum related-key attacks. Information Processing Letters, 2015, 115, 40-44. | 0.6 | 38 |
| 16 | Improved Quantum Circuits for Elliptic Curve Discrete Logarithms. Lecture Notes in Computer Science, 2020, , 425-444. | 1.3 | 36 |
| 17 | Shorter Stabilizer Circuits via Bruhat Decomposition and Quantum Circuit Transformations. IEEE Transactions on Information Theory, 2018, 64, 4729-4738. | 2.4 | 32 |
| 18 | Quantum Circuits for Floating-Point Arithmetic. Lecture Notes in Computer Science, 2018, , 162-174. | 1.3 | 28 |

| # | ARTICLE | IF | CITATIONS |
|----|--|-----|-----------|
| 19 | Quantum rejection sampling. <i>ACM Transactions on Computation Theory</i> , 2013, 5, 1-33. | 0.7 | 25 |
| 20 | Programming quantum computers using design automation. , 2018, , . | | 25 |
| 21 | LUT-Based Hierarchical Reversible Logic Synthesis. <i>IEEE Transactions on Computer-Aided Design of Integrated Circuits and Systems</i> , 2019, 38, 1675-1688. | 2.7 | 24 |
| 22 | Mutually unbiased bases, spherical designs, and frames. , 2005, , . | | 23 |
| 23 | Verified Compilation of Space-Efficient Reversible Circuits. <i>Lecture Notes in Computer Science</i> , 2017, , 3-21. | 1.3 | 23 |
| 24 | Design automation and design space exploration for quantum computers. , 2017, , . | | 21 |
| 25 | Reversible Pebbling Game for Quantum Memory Management. , 2019, , . | | 20 |
| 26 | Quantum Computing: Codebreaking and Beyond. <i>IEEE Security and Privacy</i> , 2018, 16, 22-36. | 1.2 | 17 |
| 27 | Hierarchical Reversible Logic Synthesis Using LUTs. , 2017, , . | | 16 |
| 28 | Toward Quantum Computing for High-Energy Excited States in Molecular Systems: Quantum Phase Estimations of Core-Level States. <i>Journal of Chemical Theory and Computation</i> , 2021, 17, 201-210. | 5.3 | 16 |
| 29 | Symmetry-Assisted Adversaries for Quantum State Generation. , 2011, , . | | 15 |
| 30 | Quantum arithmetic and numerical analysis using Repeat-Until-Success circuits. <i>Quantum Information and Computation</i> , 2016, , 134-178. | 0.3 | 15 |
| 31 | The Role of Multiplicative Complexity in Compiling Low T -count Oracle Circuits. , 2019, , . | | 12 |
| 32 | QuaFL. , 2013, , . | | 11 |
| 33 | Identification of a reversible quantum gate: assessing the resources. <i>New Journal of Physics</i> , 2013, 15, 103019. | 2.9 | 10 |
| 34 | Quantum rejection sampling. , 2012, , . | | 9 |
| 35 | REVS: A Tool for Space-Optimized Reversible Circuit Synthesis. <i>Lecture Notes in Computer Science</i> , 2017, , 90-101. | 1.3 | 9 |
| 36 | Quadratic Form Expansions for Unitaries. <i>Lecture Notes in Computer Science</i> , 2008, , 29-46. | 1.3 | 8 |

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|----|---|-----|-----------|
| 37 | A hybrid nano-CMOS architecture for defect and fault tolerance. ACM Journal on Emerging Technologies in Computing Systems, 2009, 5, 1-26. | 2.3 | 7 |
| 38 | A best-fit mapping algorithm to facilitate ESOP-decomposition in Clifford+T quantum network synthesis. , 2018, , . | | 5 |
| 39 | Enumerating Optimal Quantum Circuits using Spectral Classification. , 2020, , . | | 5 |
| 40 | Enabling accuracy-aware Quantum compilers using symbolic resource estimation. , 2020, 4, 1-26. | | 5 |
| 41 | Improved quantum ternary arithmetic. Quantum Information and Computation, 2016, 16, 862-884. | 0.3 | 5 |
| 42 | RaceTM. , 2008, , . | | 4 |
| 43 | Leveraging automorphisms of quantum codes for fault-tolerant quantum computation. , 2013, , . | | 3 |
| 44 | Abstract resource cost derivation for logical quantum circuit descriptions. , 2013, , . | | 3 |
| 45 | Design automation for quantum architectures. , 2017, , . | | 3 |
| 46 | ROS: Resource-constrained Oracle Synthesis for Quantum Computers. Electronic Proceedings in Theoretical Computer Science, EPTCS, 0, 318, 119-130. | 0.8 | 3 |
| 47 | Fault-Tolerant Computing Using a Hybrid Nano-CMOS Architecture. , 2008, , . | | 2 |
| 48 | Tools for Quantum and Reversible Circuit Compilation. Lecture Notes in Computer Science, 2017, , 3-16. | 1.3 | 2 |
| 49 | Comparing the architectures of the first programmable quantum computers. , 2017, , . | | 1 |
| 50 | Quantum Circuits for Functionally Controlled NOT Gates. , 2020, , . | | 1 |
| 51 | Design of Synchronous "Plug & Play" QKD-WDM-PON for Efficient Quantum Communications. , 2011, , . | | 1 |
| 52 | Improved Bounded-Strength Decoupling Schemes for Local Hamiltonians. IEEE Transactions on Information Theory, 2016, 62, 2881-2894. | 2.4 | 0 |
| 53 | Quantum Error Correction. , 2016, , 1698-1703. | | 0 |