

# Norbert Lutkenhaus

## List of Publications by Year in descending order

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155  
papers

10,744  
citations

57631

44  
h-index

31759

101  
g-index

161  
all docs

161  
docs citations

161  
times ranked

4376  
citing authors

#	ARTICLE	IF	CITATIONS
1	The security of practical quantum key distribution. <i>Reviews of Modern Physics</i> , 2009, 81, 1301-1350.	16.4	2,489
2	Limitations on Practical Quantum Cryptography. <i>Physical Review Letters</i> , 2000, 85, 1330-1333.	2.9	1,016
3	Security against individual attacks for realistic quantum key distribution. <i>Physical Review A</i> , 2000, 61, .	1.0	578
4	Bell measurements for teleportation. <i>Physical Review A</i> , 1999, 59, 3295-3300.	1.0	423
5	Continuous Variable Quantum Cryptography: Beating the 3ÅdB Loss Limit. <i>Physical Review Letters</i> , 2002, 89, 167901.	2.9	287
6	Higher-dimensional orbital-angular-momentum-based quantum key distribution with mutually unbiased bases. <i>Physical Review A</i> , 2013, 88, .	1.0	264
7	Optimal architectures for long distance quantum communication. <i>Scientific Reports</i> , 2016, 6, 20463.	1.6	262
8	Entanglement as a Precondition for Secure Quantum Key Distribution. <i>Physical Review Letters</i> , 2004, 92, 217903.	2.9	245
9	Maximum efficiency of a linear-optical Bell-state analyzer. <i>Applied Physics B: Lasers and Optics</i> , 2001, 72, 67-71.	1.1	231
10	Unconditional security of practical quantum key distribution. <i>European Physical Journal D</i> , 2007, 41, 599-627.	0.6	230
11	Quantum key distribution with realistic states: photon-number statistics in the photon-number splitting attack. <i>New Journal of Physics</i> , 2002, 4, 44-44.	1.2	229
12	Ultrafast and Fault-Tolerant Quantum Communication across Long Distances. <i>Physical Review Letters</i> , 2014, 112, 250501.	2.9	204
13	Nonclassical effects in phase space. <i>Physical Review A</i> , 1995, 51, 3340-3342.	1.0	174
14	Estimates for practical quantum cryptography. <i>Physical Review A</i> , 1999, 59, 3301-3319.	1.0	156
15	Self-Referenced Continuous-Variable Quantum Key Distribution Protocol. <i>Physical Review X</i> , 2015, 5, .	2.8	126
16	Simple security analysis of phase-matching measurement-device-independent quantum key distribution. <i>Physical Review A</i> , 2018, 98, .	1.0	126
17	Unambiguous state discrimination in quantum cryptography with weak coherent states. <i>Physical Review A</i> , 2000, 62, .	1.0	122
18	Security of quantum key distribution with imperfect devices. , 0, , .		115

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19	Squashing Models for Optical Measurements in Quantum Communication. <i>Physical Review Letters</i> , 2008, 101, 093601.	2.9	108
20	Nonlinear Entanglement Witnesses. <i>Physical Review Letters</i> , 2006, 96, 170502.	2.9	102
21	Security against eavesdropping in quantum cryptography. <i>Physical Review A</i> , 1996, 54, 97-111.	1.0	99
22	Quantum cryptography. <i>Progress in Optics</i> , 2006, 49, 381-454.	0.4	94
23	Numerical approach for unstructured quantum key distribution. <i>Nature Communications</i> , 2016, 7, 11712.	5.8	85
24	Quantum repeaters using coherent-state communication. <i>Physical Review A</i> , 2008, 78, .	1.0	84
25	Testing quantum devices: Practical entanglement verification in bipartite optical systems. <i>Physical Review A</i> , 2008, 77, .	1.0	80
26	Experimental procedures for entanglement verification. <i>Physical Review A</i> , 2007, 75, .	1.0	79
27	Asymptotic security of binary modulated continuous-variable quantum key distribution under collective attacks. <i>Physical Review A</i> , 2009, 79, .	1.0	77
28	Quantum repeaters with imperfect memories: Cost and scalability. <i>Physical Review A</i> , 2009, 80, .	1.0	77
29	Comment on "Arbitrated quantum-signature scheme". <i>Physical Review A</i> , 2008, 77, .	1.0	76
30	Memory-assisted measurement-device-independent quantum key distribution. <i>New Journal of Physics</i> , 2014, 16, 043005.	1.2	72
31	Security loophole in free-space quantum key distribution due to spatial-mode detector-efficiency mismatch. <i>Physical Review A</i> , 2015, 91, .	1.0	71
32	Mimicking a squeezed-bath interaction: Quantum-reservoir engineering with atoms. <i>Physical Review A</i> , 1998, 57, 548-558.	1.0	70
33	Reduction theorems for optimal unambiguous state discrimination of density matrices. <i>Physical Review A</i> , 2003, 68, .	1.0	70
34	Security of trusted repeater quantum key distribution networks. <i>Journal of Computer Security</i> , 2010, 18, 61-87.	0.5	66
35	Experimental quantum fingerprinting with weak coherent pulses. <i>Nature Communications</i> , 2015, 6, 8735.	5.8	65
36	Asymptotic Security Analysis of Discrete-Modulated Continuous-Variable Quantum Key Distribution. <i>Physical Review X</i> , 2019, 9, .	2.8	64

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37	Unconditional security of the Bennett 1992 quantum key-distribution protocol over a lossy and noisy channel. <i>Physical Review A</i> , 2004, 69, .	1.0	62
38	Symmetries in quantum key distribution and the connection between optimal attacks and optimal cloning. <i>Physical Review A</i> , 2012, 85, .	1.0	60
39	Reliable numerical key rates for quantum key distribution. <i>Quantum - the Open Journal for Quantum Science</i> , 0, 2, 77.	0.0	59
40	Non-Poissonian statistics from Poissonian light sources with application to passive decoy state quantum key distribution. <i>Optics Letters</i> , 2009, 34, 3238.	1.7	56
41	Efficient heralding of photonic qubits with applications to device-independent quantum key distribution. <i>Physical Review A</i> , 2011, 84, .	1.0	56
42	Security of coherent-state quantum cryptography in the presence of Gaussian noise. <i>Physical Review A</i> , 2007, 76, .	1.0	52
43	Entanglement verification for quantum-key-distribution systems with an underlying bipartite qubit-mode structure. <i>Physical Review A</i> , 2006, 73, .	1.0	51
44	Efficiency of coherent-state quantum cryptography in the presence of loss: Influence of realistic error correction. <i>Physical Review A</i> , 2006, 73, .	1.0	51
45	Quantum fingerprinting with coherent states and a constant mean number of photons. <i>Physical Review A</i> , 2014, 89, .	1.0	51
46	Implementation of projective measurements with linear optics and continuous photon counting. <i>Physical Review A</i> , 2005, 71, .	1.0	48
47	Detecting two-party quantum correlations in quantum-key-distribution protocols. <i>Physical Review A</i> , 2005, 71, .	1.0	44
48	Experimental quantum key distribution with simulated ground-to-satellite photon losses and processing limitations. <i>Physical Review A</i> , 2015, 92, .	1.0	42
49	Quantum technology: from research to application. <i>Applied Physics B: Lasers and Optics</i> , 2016, 122, 1.	1.1	42
50	Unconditional security of the Bennett 1992 quantum-key-distribution scheme with a strong reference pulse. <i>Physical Review A</i> , 2009, 80, .	1.0	41
51	Focus on Quantum Cryptography: Theory and Practice. <i>New Journal of Physics</i> , 2009, 11, 045005.	1.2	40
52	Topological optimization of quantum key distribution networks. <i>New Journal of Physics</i> , 2009, 11, 075002.	1.2	40
53	Quantum communication with coherent states and linear optics. <i>Physical Review A</i> , 2014, 90, .	1.0	40
54	Optimal unambiguous state discrimination of two density matrices: Lower bound and class of exact solutions. <i>Physical Review A</i> , 2005, 72, .	1.0	39

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55	Eavesdropping and countermeasures for backflash side channel in quantum cryptography. Optics Express, 2018, 26, 21020.	1.7	39
56	Upper bounds on success probabilities in linear optics. New Journal of Physics, 2004, 6, 51-51.	1.2	36
57	Binary Projective Measurement via Linear Optics and Photon Counting. Physical Review Letters, 2006, 97, 040502.	2.9	36
58	Simple criteria for the implementation of projective measurements with linear optics. Physical Review A, 2004, 69, .	1.0	34
59	Entanglement verification with realistic measurement devices via squashing operations. Physical Review A, 2010, 81, .	1.0	33
60	Demonstration of analyzers for multimode photonic time-bin qubits. Physical Review A, 2018, 97, .	1.0	30
61	Quantum cloning and distributed measurements. Physical Review A, 2001, 63, .	1.0	29
62	Symmetric extension of two-qubit states. Physical Review A, 2014, 90, .	1.0	29
63	Detector decoy quantum key distribution. New Journal of Physics, 2009, 11, 045008.	1.2	27
64	Gaussian-only regenerative stations cannot act as quantum repeaters. Physical Review A, 2014, 90, .	1.0	27
65	Eavesdropper's ability to attack a free-space quantum-key-distribution receiver in atmospheric turbulence. Physical Review A, 2019, 99, .	1.0	26
66	Intercept-resend attacks in the Bennett-Brassard 1984 quantum-key-distribution protocol with weak coherent pulses. Physical Review A, 2005, 71, .	1.0	25
67	Improved Data Post-Processing in Quantum Key Distribution and Application to Loss Thresholds in device independent QKD. Quantum Information and Computation, 2012, 12, 203-214.	0.1	24
68	Effect of finite detector efficiencies on the security evaluation of quantum key distribution. Physical Review A, 2004, 69, .	1.0	23
69	One-way quantum key distribution: Simple upper bound on the secret key rate. Physical Review A, 2006, 74, .	1.0	23
70	Nonlinear entanglement witnesses, covariance matrices and the geometry of separable states. Journal of Physics: Conference Series, 2007, 67, 012004.	0.3	22
71	Optimal unambiguous state discrimination of two density matrices: A second class of exact solutions. Physical Review A, 2007, 76, .	1.0	21
72	Quantum benchmarks for the storage or transmission of quantum light from minimal resources. Physical Review A, 2010, 81, .	1.0	21

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73	Optimal working points for continuous-variable quantum channels. <i>Physical Review A</i> , 2013, 88, .	1.0	21
74	Security proof of practical quantum key distribution with detection-efficiency mismatch. <i>Physical Review Research</i> , 2021, 3, .	1.3	21
75	The Case for Quantum Key Distribution. <i>Lecture Notes of the Institute for Computer Sciences, Social-Informatics and Telecommunications Engineering</i> , 2010, , 283-296.	0.2	21
76	Iterations of nonlinear entanglement witnesses. <i>Physical Review A</i> , 2008, 78, .	1.0	20
77	Simulating single photons with realistic photon sources. <i>Physical Review A</i> , 2016, 94, .	1.0	20
78	Dimension Reduction in Quantum Key Distribution for Continuous- and Discrete-Variable Protocols. <i>PRX Quantum</i> , 2021, 2, .	3.5	20
79	Quantum Key Distribution: from Principles to Practicalities. <i>Applicable Algebra in Engineering, Communications and Computing</i> , 2000, 10, 383-399.	0.3	19
80	Symmetric extension in two-way quantum key distribution. <i>Physical Review A</i> , 2009, 79, .	1.0	19
81	Security of quantum key distribution using a simplified trusted relay. <i>Physical Review A</i> , 2015, 91, .	1.0	19
82	Role of syndrome information on a one-way quantum repeater using teleportation-based error correction. <i>Physical Review A</i> , 2016, 94, .	1.0	19
83	Accessible nonlinear entanglement witnesses. <i>Physical Review A</i> , 2012, 85, .	1.0	18
84	Numerical calculations of the finite key rate for general quantum key distribution protocols. <i>Physical Review Research</i> , 2021, 3, .	1.3	18
85	Quantum key distribution: theory for application. <i>Applied Physics B: Lasers and Optics</i> , 1999, 69, 395-400.	1.1	17
86	Removal of a single photon by adaptive absorption. <i>Physical Review A</i> , 2001, 64, .	1.0	17
87	Probing the quantumness of channels with mixed states. <i>Physical Review A</i> , 2009, 80, .	1.0	17
88	Passive sources for the Bennett-Brassard 1984 quantum-key-distribution protocol with practical signals. <i>Physical Review A</i> , 2010, 82, .	1.0	17
89	Witnessing effective entanglement over a 2km fiber channel. <i>Optics Express</i> , 2010, 18, 4499.	1.7	17
90	Linear-optics realization of channels for single-photon multimode qudits. <i>Physical Review A</i> , 2011, 84, .	1.0	17

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91	Strong quantitative benchmarking of quantum optical devices. <i>Physical Review A</i> , 2011, 83, .	1.0	17
92	The Engineering of a Scalable Multi-Site Communications System Utilizing Quantum Key Distribution (QKD). <i>Quantum Science and Technology</i> , 0, .	2.6	17
93	Conditional beam-splitting attack on quantum key distribution. <i>Physical Review A</i> , 2001, 65, .	1.0	16
94	Spectrum conditions for symmetric extendible states. <i>Physical Review A</i> , 2009, 79, .	1.0	16
95	Trusted Detector Noise Analysis for Discrete Modulation Schemes of Continuous-Variable Quantum Key Distribution. <i>Physical Review Applied</i> , 2020, 14, .	1.5	16
96	Sifting attacks in finite-size quantum key distribution. <i>New Journal of Physics</i> , 2016, 18, 053001.	1.2	15
97	Security proof of the unbalanced phase-encoded Bennett-Brassard 1984 protocol. <i>Physical Review A</i> , 2012, 86, .	1.0	14
98	Reliable entanglement verification. <i>Physical Review A</i> , 2013, 87, .	1.0	14
99	Demonstration of a 6 state-4 state reference frame independent channel for quantum key distribution. <i>Applied Physics Letters</i> , 2019, 115, 211103.	1.5	14
100	Upper bound on the secret key rate distillable from effective quantum correlations with imperfect detectors. <i>Physical Review A</i> , 2006, 73, .	1.0	13
101	Truncated $\frac{\{s\}}{2}$ moment problem for spin and polarization states. <i>Journal of Physics A: Mathematical and Theoretical</i> , 2008, 41, 275302.	0.7	13
102	Quantum benchmarking with realistic states of light. <i>Physical Review A</i> , 2012, 86, .	1.0	13
103	Security-proof framework for two-way Gaussian quantum-key-distribution protocols. <i>Physical Review A</i> , 2018, 98, .	1.0	13
104	Practical quantum retrieval games. <i>Physical Review A</i> , 2016, 93, .	1.0	11
105	Security Aspects of Practical Quantum Cryptography. <i>Lecture Notes in Computer Science</i> , 2000, , 289-299.	1.0	11
106	Quantum throughput: Quantifying quantum-communication devices with homodyne measurements. <i>Physical Review A</i> , 2010, 82, .	1.0	9
107	Worldwide standardization activity for quantum key distribution. , 2014, , .		9
108	Numerical evidence for bound secrecy from two-way postprocessing in quantum key distribution. <i>Physical Review A</i> , 2017, 95, .	1.0	9

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109	Hamiltonians for one-way quantum repeaters. <i>Quantum - the Open Journal for Quantum Science</i> , 0, 2, 75.	0.0	8
110	Upper bounds for the secure key rate of the decoy-state quantum key distribution. <i>Physical Review A</i> , 2009, 79, .	1.0	7
111	Families of quantum fingerprinting protocols. <i>Physical Review A</i> , 2018, 97, .	1.0	7
112	Entanglement verification with detection-efficiency mismatch. <i>Physical Review A</i> , 2017, 95, .	1.0	6
113	Beating direct transmission bounds for quantum key distribution with a multiple quantum memory station. <i>Physical Review A</i> , 2020, 101, .	1.0	6
114	Improving key rates of the unbalanced phase-encoded BB84 protocol using the flag-state squashing model. <i>Physical Review Research</i> , 2020, 2, .	1.3	6
115	Quantum Key Distribution. , 2014, , 107-146.		5
116	Squashing Models for Optical Measurements in Quantum Communication. , 2009, , .		4
117	Characterization of Gram matrices of multimode coherent states. <i>Physical Review A</i> , 2019, 99, .	1.0	4
118	Practical quantum appointment scheduling. <i>Physical Review A</i> , 2018, 97, .	1.0	3
119	Implementing nonprojective measurements via linear optics: An approach based on optimal quantum-state discrimination. <i>Physical Review A</i> , 2006, 73, .	1.0	2
120	Erasable Bit Commitment From Temporary Quantum Trust. <i>IEEE Journal on Selected Areas in Information Theory</i> , 2020, 1, 536-554.	1.9	2
121	Passive preparation of BB84 signal states with coherent light. <i>Progress in Informatics</i> , 2011, , 57.	0.2	2
122	Quantum key distribution: how do we know it's secure?. <i>Optics and Photonics News</i> , 2004, 15, 24.	0.4	1
123	Secret keys from quantum correlations. <i>Computer Science - Research and Development</i> , 2006, 21, 29-37.	0.9	1
124	Symmetric extension and its application in QKD. , 2009, , .		1
125	Security Against Eavesdropping in Quantum Cryptography. , 1997, , 89-98.		1
126	Ultrafast and Fault-Tolerant Quantum Communication over Long Distances. , 2014, , .		1



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127	Experimental Quantum Cloning with Continuous Variables. , 2007, , 305-322.		1
128	Linear-Optics Realization of Channels for Single-Photon Multimode Qudits. , 2011, , .		1
129	Quantum Memories in Action. , 2014, , .		1
130	Dim Coherent States as Signal States in the Bb84 Protocol: Is it Secure?. , 2002, , 387-392.		0
131	Criteria for the Implementation of Projective Measurements in Quantum Optics. AIP Conference Proceedings, 2004, , .	0.3	0
132	Long-Distance Quantum Communication with Multiple Quantum Memories. , 2008, , .		0
133	Testing Quantum Memories Via Entanglement Verification. , 2009, , .		0
134	Security of Quantum Key Distribution. , 2010, , .		0
135	Passive Decoy State Quantum Key Distribution with Coherent Light. , 2010, , .		0
136	Passive Decoy State Quantum Key Distribution. Lecture Notes of the Institute for Computer Sciences, Social-Informatics and Telecommunications Engineering, 2010, , 132-141.	0.2	0
137	Improving Heralded Amplifiers In Device Independent QKD. , 2011, , .		0
138	Quantum benchmarks from any states of light. , 2012, , .		0
139	Average iterations of accessible nonlinear witnesses. , 2014, , .		0
140	Quantitative Quantum Communication: Practical Realizations of Exponential Quantum Advantage. , 2014, , .		0
141	Optimized architectures for long distance quantum communication. , 2017, , .		0
142	Cryptographic and Non-Cryptographic Network Applications and Their Optical Implementations. , 2018, , .		0
143	THEORETICAL ASPECTS OF PRACTICAL QUANTUM KEY DISTRIBUTION. , 2002, , .		0
144	Quantum key distribution with coherent polarization states. , 2004, , .		0

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145	Fundamental Bounds and Performance Tests for the Storage or Transmission of Quantum Light. , 2010, , .		0
146	Witnessing Effective Entanglement over 2km of Optical Fiber. , 2010, , .		0
147	Extending Quantum Optical Benchmarks with Entanglement Measures. , 2011, , .		0
148	Quantifying the strength of optical communication devices using entanglement measures. , 2011, , .		0
149	Quantum Information Theory in Optics. , 2011, , .		0
150	Directions in Optical Implementations of Quantum Key Distribution. , 2012, , .		0
151	Trapped Ion Implementation of Memory-Assisted Extended Quantum Key Distribution. , 2014, , .		0
152	Mapping Qubit Protocols to Coherent-State Protocols in Quantum Communication. , 2014, , .		0
153	Degree of Nonclassical Behaviour. , 1995, , 81-87.		0
154	Realization of Communication Protocols with a Quantitative Quantum Communication Advantage. , 2016, , .		0
155	Theory of Quantum Key Distribution: The Road Ahead (Invited Talk). Lecture Notes in Computer Science, 2008, , 120-120.	1.0	0