

Paul Busch

List of Publications by Year in descending order

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106
papers

3,751
citations

172457

29
h-index

133252

59
g-index

108
all docs

108
docs citations

108
times ranked

1250
citing authors

#	ARTICLE	IF	CITATIONS
1	Heisenberg's uncertainty principle. <i>Physics Reports</i> , 2007, 452, 155-176.	25.6	331
2	Operational Quantum Physics. <i>Lecture Notes in Physics Monographs</i> , 1995, , .	0.5	323
3	The Quantum Theory of Measurement. <i>Lecture Notes in Physics Monographs</i> , 1991, , .	0.5	228
4	Unsharp reality and joint measurements for spin observables. <i>Physical Review D</i> , 1986, 33, 2253-2261.	4.7	227
5	Proof of Heisenberg's Error-Disturbance Relation. <i>Physical Review Letters</i> , 2013, 111, 160405.	7.8	191
6	Quantum States and Generalized Observables: A Simple Proof of Gleason's Theorem. <i>Physical Review Letters</i> , 2003, 91, 120403.	7.8	187
7	<i>Colloquium</i>: Quantum root-mean-square error and measurement uncertainty relations. <i>Reviews of Modern Physics</i> , 2014, 86, 1261-1281.	45.6	148
8	Indeterminacy relations and simultaneous measurements in quantum theory. <i>International Journal of Theoretical Physics</i> , 1985, 24, 63-92.	1.2	107
9	Informationally complete sets of physical quantities. <i>International Journal of Theoretical Physics</i> , 1991, 30, 1217-1227.	1.2	93
10	Heisenberg uncertainty for qubit measurements. <i>Physical Review A</i> , 2014, 89, .	2.5	89
11	The determination of the past and the future of a physical system in quantum mechanics. <i>Foundations of Physics</i> , 1989, 19, 633-678.	1.3	84
12	Time observables in quantum theory. <i>Physics Letters, Section A: General, Atomic and Solid State Physics</i> , 1994, 191, 357-361.	2.1	77
13	Some realizable joint measurements of complementary observables. <i>Foundations of Physics</i> , 1987, 17, 905-937.	1.3	74
14	Complementarity and uncertainty in Mach's Zehnder interferometry and beyond. <i>Physics Reports</i> , 2006, 435, 1-31.	25.6	73
15	Comparing the degrees of incompatibility inherent in probabilistic physical theories. <i>Europhysics Letters</i> , 2013, 103, 10002.	2.0	72
16	On the energy-time uncertainty relation. Part I: Dynamical time and time indeterminacy. <i>Foundations of Physics</i> , 1990, 20, 1-32.	1.3	71
17	Lüders theorem for unsharp quantum measurements. <i>Physics Letters, Section A: General, Atomic and Solid State Physics</i> , 1998, 249, 10-12.	2.1	71
18	Measurement uncertainty relations. <i>Journal of Mathematical Physics</i> , 2014, 55, .	1.1	57

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19	On various joint measurements of position and momentum observables in quantum theory. <i>Physical Review D</i> , 1984, 29, 1634-1646.	4.7	53
20	On the reality of spin and helicity. <i>Foundations of Physics</i> , 1989, 19, 807-872.	1.3	46
21	The standard model of quantum measurement theory: History and applications. <i>Foundations of Physics</i> , 1996, 26, 875-893.	1.3	45
22	Insolubility of the quantum measurement problem for unsharp observables. <i>Studies in History and Philosophy of Science Part B - Studies in History and Philosophy of Modern Physics</i> , 1996, 27, 397-404.	1.4	45
23	On the energy-time uncertainty relation. Part II: Pragmatic time versus energy indeterminacy. <i>Foundations of Physics</i> , 1990, 20, 33-43.	1.3	43
24	Coexistence of qubit effects. <i>Quantum Information Processing</i> , 2010, 9, 143-169.	2.2	43
25	Unsharp Quantum Reality. <i>Foundations of Physics</i> , 2010, 40, 1341-1367.	1.3	42
26	Symmetry, Reference Frames, and Relational Quantities in Quantum Mechanics. <i>Foundations of Physics</i> , 2018, 48, 135-198.	1.3	41
27	Steering, incompatibility, and Bell-inequality violations in a class of probabilistic theories. <i>Physical Review A</i> , 2014, 89, .	2.5	38
28	Noise and disturbance in quantum measurement. <i>Physics Letters, Section A: General, Atomic and Solid State Physics</i> , 2004, 320, 261-270.	2.1	35
29	The Time- Δ Energy Uncertainty Relation. , 2008, , 73-105.		34
30	Commutativity up to a factor of bounded operators in complex Hilbert space. <i>Proceedings of the Royal Society A: Mathematical, Physical and Engineering Sciences</i> , 2002, 458, 109-118.	2.1	32
31	Approximating relational observables by absolute quantities: a quantum accuracy-size trade-off. <i>Journal of Physics A: Mathematical and Theoretical</i> , 2016, 49, 185301.	2.1	32
32	Unsharp localization and causality in relativistic quantum theory. <i>Journal of Physics A</i> , 1999, 32, 6535-6546.	1.6	30
33	To what extent do position and momentum commute?. <i>Physics Letters, Section A: General, Atomic and Solid State Physics</i> , 1986, 115, 259-264.	2.1	28
34	Causality of superluminal barrier traversal. <i>Physics Letters, Section A: General, Atomic and Solid State Physics</i> , 1994, 185, 9-13.	2.1	28
35	On the quantum theory of sequential measurements. <i>Foundations of Physics</i> , 1990, 20, 757-775.	1.3	25
36	Von Neumann entropy and majorization. <i>Journal of Mathematical Analysis and Applications</i> , 2013, 408, 384-393.	1.0	24

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37	Position Measurements Obeying Momentum Conservation. <i>Physical Review Letters</i> , 2011, 106, 110406.	7.8	23
38	Some remarks on effects, operations, and unsharp measurements. <i>Foundations of Physics Letters</i> , 1989, 2, 331-345.	0.6	22
39	Some Remarks on Unsharp Quantum Measurements, Quantum Non-Demolition, and All That. <i>Annalen Der Physik</i> , 1990, 502, 369-382.	2.4	21
40	Some important classes of quantum measurements and their information gain. <i>Journal of Mathematical Physics</i> , 1991, 32, 2770-2775.	1.1	21
41	Can "Unsharp Objectification"™ Solve the Quantum Measurement Problem?. <i>International Journal of Theoretical Physics</i> , 1998, 37, 241-247.	1.2	21
42	A Note on Quantum Theory, Complementarity, and Uncertainty. <i>Philosophy of Science</i> , 1985, 52, 64-77.	1.0	21
43	On the Sharpness and Bias of Quantum Effects. <i>Foundations of Physics</i> , 2009, 39, 712-730.	1.3	20
44	Universal joint-measurement uncertainty relation for error bars. <i>Journal of Mathematical Physics</i> , 2007, 48, 082103.	1.1	19
45	On joint lower bounds of position and momentum observables in quantum mechanics. <i>Journal of Mathematical Physics</i> , 1984, 25, 1794-1797.	1.1	18
46	Quantum observables: Compatibility versus commutativity and maximal information. <i>Journal of Mathematical Physics</i> , 1987, 28, 2866-2872.	1.1	18
47	PROBABILITY STRUCTURES FOR QUANTUM STATE SPACES. <i>Reviews in Mathematical Physics</i> , 1995, 07, 1105-1121.	1.7	18
48	The Time-Energy Uncertainty Relation. , 2002, , 69-98.		18
49	Surprising features of unsharp quantum measurements. <i>Physics Letters, Section A: General, Atomic and Solid State Physics</i> , 1988, 130, 323-329.	2.1	17
50	Repeatable measurements in quantum theory: Their role and feasibility. <i>Foundations of Physics</i> , 1995, 25, 1239-1266.	1.3	17
51	Current conservation as a geometric property of space-time. <i>Canadian Journal of Physics</i> , 1988, 66, 238-244.	1.1	16
52	Completely positive mappings in quantum dynamics and measurement theory. <i>Foundations of Physics</i> , 1990, 20, 1429-1439.	1.3	16
53	The problem of objectification in quantum mechanics. <i>Foundations of Physics</i> , 1991, 21, 889-904.	1.3	15
54	The structure of classical extensions of quantum probability theory. <i>Journal of Mathematical Physics</i> , 2008, 49, 032104.	1.1	15

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55	“No Information Without Disturbance” Quantum Limitations of Measurement. The Western Ontario Series in Philosophy of Science, 2009, , 229-256.	0.2	14
56	On classical representations of finite-dimensional quantum mechanics. International Journal of Theoretical Physics, 1993, 32, 399-405.	1.2	13
57	Problem of signal transmission via quantum correlations and Einstein incompleteness in quantum mechanics. Physical Review A, 1993, 47, 1647-1651.	2.5	13
58	Direct Tests of Measurement Uncertainty Relations: What It Takes. Physical Review Letters, 2015, 114, 070402.	7.8	13
59	Concepts of coarse graining in quantum mechanics. International Journal of Theoretical Physics, 1993, 32, 2261-2269.	1.2	12
60	The Role of Entanglement in Quantum Measurement and Information Processing. International Journal of Theoretical Physics, 2003, 42, 937-941.	1.2	12
61	Weak objectification, joint probabilities, and Bell inequalities in quantum mechanics. Foundations of Physics, 1992, 22, 949-962.	1.3	11
62	The measure cone: Irreversibility as a geometrical phenomenon. International Journal of Quantum Chemistry, 1992, 41, 163-185.	2.0	10
63	Phase statistics and phase-space measurements. Physical Review A, 1994, 50, 2881-2884.	2.5	10
64	Uncertainty reconciles complementarity with joint measurability. Physical Review A, 2003, 68, .	2.5	10
65	Polarization correlations of proton pairs as tests of hidden-variable theories. Physics Letters, Section A: General, Atomic and Solid State Physics, 2004, 323, 176-181.	2.1	9
66	Measurement uncertainty relations: characterising optimal error bounds for qubits. Journal of Physics A: Mathematical and Theoretical, 2018, 51, 283001.	2.1	9
67	LÅ¼ders Rule. , 2009, , 356-358.		9
68	Coarse graining and the quantum“Classical connection. Open Systems and Information Dynamics, 1994, 2, 129-155.	1.2	8
69	Correlation properties of quantum measurements. Journal of Mathematical Physics, 1996, 37, 2585-2601.	1.1	8
70	Measuring position and momentum together. Physics Letters, Section A: General, Atomic and Solid State Physics, 2008, 372, 4379-4380.	2.1	8
71	Focusing in Arthurs-Kelly-Type Joint Measurements with Correlated Probes. Physical Review Letters, 2014, 113, 120401.	7.8	8
72	Remarks on separability of compound quantum systems and time reversal. Foundations of Physics Letters, 1997, 10, 113-117.	0.6	7

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73	On the notion of coexistence in quantum mechanics. <i>Mathematica Slovaca</i> , 2010, 60, 665-680.	0.6	7
74	On Ruch's Principle of Decreasing Mixing Distance in classical statistical physics. <i>Journal of Statistical Physics</i> , 1990, 61, 311-328.	1.2	5
75	Testing quantum mechanics against a full set of Bell inequalities. <i>Physical Review A</i> , 1993, 47, 4627-4631.	2.5	4
76	Orthogonality and Disjointness in Spaces of Measures. , 1998, 44, 215-224.		4
77	Multislit interferometry and commuting functions of position and momentum. <i>Physical Review A</i> , 2013, 87, .	2.5	4
78	Sharp uncertainty relations for number and angle. <i>Journal of Mathematical Physics</i> , 2018, 59, .	1.1	4
79	Observable. , 2009, , 425-428.		4
80	Measurement Theory. , 2009, , 374-379.		3
81	Heisenberg Uncertainty Relation (Indeterminacy Relations). , 2009, , 281-283.		3
82	EPR-Bell Tests with Unsharp Observables and Relativistic Quantum Measurement. , 2002, , 175-193.		3
83	Peter Mittelstaedt: Philosopher-physicist. <i>Foundations of Physics</i> , 1989, 19, 789-791.	1.3	2
84	Individual aspects of quantum measurements. <i>Journal of Physics A</i> , 1996, 29, 5899-5907.	1.6	2
85	Teleportation and measurement. <i>Physics Letters, Section A: General, Atomic and Solid State Physics</i> , 2001, 284, 141-145.	2.1	2
86	Lùders theorem for coherent-state POVMs. <i>Journal of Mathematical Physics</i> , 2003, 44, 5474.	1.1	2
87	Between Physics and Philosophy – Festschrift for Peter Mittelstaedt on His 80th Birthday. <i>Foundations of Physics</i> , 2010, 40, 1161-1162.	1.3	2
88	Quantum – Matter – Spacetime: Peter Mittelstaedt's Contributions to Physics and Its Foundations. <i>Foundations of Physics</i> , 2010, 40, 1163-1170.	1.3	2
89	Quantum mechanics as a framework for dealing with uncertainty. <i>Physica Scripta</i> , 2010, T140, 014003.	2.5	2
90	Effect. , 2009, , 179-180.		2

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91	Linearity versus symmetry?. Physics Letters, Section A: General, Atomic and Solid State Physics, 1988, 126, 300-302.	2.1	1
92	Sławomir Bugajski 1941–2003. International Journal of Theoretical Physics, 2003, 42, 1133-1137.	1.2	1
93	Pekka Johannes Lahti–60th Birthday. Foundations of Physics, 2009, 39, 519-520.	1.3	1
94	Peter Mittelstaedt: List of Publications until 2010. Foundations of Physics, 2010, 40, 1189-1199.	1.3	1
95	Quantum rms error and Heisenberg’s error-disturbance relation. EPJ Web of Conferences, 2014, 78, 01002.	0.3	1
96	Philosophical Problems of Modern Physics: Peter Mittelstaedt 1929–2014. Foundations of Physics, 2015, 45, 483-495.	1.3	1
97	Remarks on Unsharp Quantum Observables, Objectification, and Modal Interpretations. The Western Ontario Series in Philosophy of Science, 1998, , 279-288.	0.2	1
98	Position and Momentum. Theoretical and Mathematical Physics (United States), 2016, , 345-365.	0.0	0
99	Bell Inequalities and Incompatibility. Theoretical and Mathematical Physics (United States), 2016, , 465-476.	0.0	0
100	Measurement Implementations. Theoretical and Mathematical Physics (United States), 2016, , 425-462.	0.0	0
101	Measurement Uncertainty. Theoretical and Mathematical Physics (United States), 2016, , 287-315.	0.0	0
102	Weakly Disturbing Phase Space Measurements in Quantum Mechanics. , 1995, , 155-163.		0
103	Measurement Problem. Theoretical and Mathematical Physics (United States), 2016, , 489-497.	0.0	0
104	Qubits. Theoretical and Mathematical Physics (United States), 2016, , 319-343.	0.0	0
105	Time and Energy. Theoretical and Mathematical Physics (United States), 2016, , 389-403.	0.0	0
106	State Reconstruction. Theoretical and Mathematical Physics (United States), 2016, , 405-424.	0.0	0