Abhay Ashtekar

List of Publications by Year
in descending order

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150 papers	19,772 citations	14655 66 h-index	10734 138 g-index
153 all docs	153 docs citations	153 times ranked	3292 citing authors

#	Article	IF	Citations
1	Background independent quantum gravity: a status report. Classical and Quantum Gravity, 2004, 21, R53-R152.	4.0	1,342
2	New Variables for Classical and Quantum Gravity. Physical Review Letters, 1986, 57, 2244-2247.	7.8	1,144
3	Quantum nature of the big bang: Improved dynamics. Physical Review D, 2006, 74, .	4.7	845
4	Loop quantum cosmology: a status report. Classical and Quantum Gravity, 2011, 28, 213001.	4.0	826
5	New Hamiltonian formulation of general relativity. Physical Review D, 1987, 36, 1587-1602.	4.7	805
6	Quantum theory of geometry: I. Area operators. Classical and Quantum Gravity, 1997, 14, A55-A81.	4.0	625
7	Quantum Nature of the Big Bang. Physical Review Letters, 2006, 96, 141301.	7.8	576
8	Mathematical structure of loop quantum cosmology. Advances in Theoretical and Mathematical Physics, 2003, 7, 233-268.	0.6	576
9	Isolated and Dynamical Horizons and Their Applications. Living Reviews in Relativity, 2004, 7, 10.	26.7	554
10	Quantum nature of the big bang: An analytical and numerical investigation. Physical Review D, 2006, 73, .	4.7	475
11	Quantization of diffeomorphism invariant theories of connections with local degrees of freedom. Journal of Mathematical Physics, 1995, 36, 6456-6493.	1.1	474
12	Quantum geometry of isolated horizons and black hole entropy. Advances in Theoretical and Mathematical Physics, 2000, 4, 1-94.	0.6	408
13	Quantum theory of geometry II: Volume operators. Advances in Theoretical and Mathematical Physics, 1997, 1, 388-429.	0.6	387
14	Robustness of key features of loop quantum cosmology. Physical Review D, 2008, 77, .	4.7	341
15	A unified treatment of null and spatial infinity in general relativity. I. Universal structure, asymptotic symmetries, and conserved quantities at spatial infinity. Journal of Mathematical Physics, 1978, 19, 1542-1566.	1.1	338
16	Asymptotically anti-de Sitter spacetimes: conserved quantities. Classical and Quantum Gravity, 2000, 17, L17-L30.	4.0	288
17	Dynamical horizons and their properties. Physical Review D, 2003, 68, .	4.7	279
18	Weaving a classical metric with quantum threads. Physical Review Letters, 1992, 69, 237-240.	7.8	278

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19	Loop quantum cosmology ofk=1FRW models. Physical Review D, 2007, 75, .	4.7	277
20	Projective techniques and functional integration for gauge theories. Journal of Mathematical Physics, 1995, 36, 2170-2191.	1.1	274
21	Quantum geometry and the Schwarzschild singularity. Classical and Quantum Gravity, 2006, 23, 391-411.	4.0	264
22	Isolated horizons: Hamiltonian evolution and the first law. Physical Review D, 2000, 62, .	4.7	257
23	Loop quantum cosmology of Bianchi type I models. Physical Review D, 2009, 79, .	4.7	236
24	Dynamical Horizons: Energy, Angular Momentum, Fluxes, and Balance Laws. Physical Review Letters, 2002, 89, 261101.	7.8	229
25	Differential geometry on the space of connections via graphs and projective limits. Journal of Geometry and Physics, 1995, 17, 191-230.	1.4	222
26	Generic Isolated Horizons and Their Applications. Physical Review Letters, 2000, 85, 3564-3567.	7.8	215
27	Quantum gravity, shadow states and quantum mechanics. Classical and Quantum Gravity, 2003, 20, 1031-1061.	4.0	211
28	Black hole evaporation: a paradigm. Classical and Quantum Gravity, 2005, 22, 3349-3362.	4.0	209
29	The pre-inflationary dynamics of loop quantum cosmology: confronting quantum gravity with observations. Classical and Quantum Gravity, 2013, 30, 085014.	4.0	194
30	Mechanics of rotating isolated horizons. Physical Review D, 2001, 64, .	4.7	192
31	Asymptotic structure of symmetry-reduced general relativity. Physical Review D, 1997, 55, 669-686.	4.7	185
32	Mechanics of isolated horizons. Classical and Quantum Gravity, 2000, 17, 253-298.	4.0	184
33	Isolated horizons: a generalization of black hole mechanics. Classical and Quantum Gravity, 1999, 16, L1-L7.	4.0	179
34	Quantum Gravity Extension of the Inflationary Scenario. Physical Review Letters, 2012, 109, 251301.	7.8	177
35	Geometry of generic isolated horizons. Classical and Quantum Gravity, 2002, 19, 1195-1225.	4.0	172
36	Loop quantum cosmology: an overview. General Relativity and Gravitation, 2009, 41, 707-741.	2.0	171

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37	Extension of the quantum theory of cosmological perturbations to the Planck era. Physical Review D, 2013, 87, .	4.7	158
38	Quantum Transfiguration of Kruskal Black Holes. Physical Review Letters, 2018, 121, 241301.	7.8	148
39	New variables for gravity: Inclusion of matter. Physical Review D, 1989, 40, 2572-2587.	4.7	129
40	Quantum extension of the Kruskal spacetime. Physical Review D, 2018, 98, .	4.7	129
41	Multipole moments of isolated horizons. Classical and Quantum Gravity, 2004, 21, 2549-2570.	4.0	125
42	Some uniqueness results for dynamical horizons. Advances in Theoretical and Mathematical Physics, 2005, 9, 1-30.	0.6	121
43	Probability of inflation in loop quantum cosmology. General Relativity and Gravitation, 2011, 43, 3619-3655.	2.0	120
44	THE CP PROBLEM IN QUANTUM GRAVITY. International Journal of Modern Physics A, 1989, 04, 1493-1514.	1.5	117
45	Loop quantum cosmology of Bianchi type II models. Physical Review D, 2009, 80, .	4.7	117
46	Quantum theory of geometry: III. Non-commutativity of Riemannian structures. Classical and Quantum Gravity, 1998, 15, 2955-2972.	4.0	115
47	Loop quantum cosmology and slow roll inflation. Physics Letters, Section B: Nuclear, Elementary Particle and High-Energy Physics, 2010, 694, 108-112.	4.1	108
48	Asymptotic Quantization of the Gravitational Field. Physical Review Letters, 1981, 46, 573-576.	7.8	107
49	Asymptotics with a positive cosmological constant: I. Basic framework. Classical and Quantum Gravity, 2015, 32, 025004.	4.0	107
50	Quantum field theory on a cosmological, quantum space-time. Physical Review D, 2009, 79, .	4.7	99
51	Information is Not Lost in the Evaporation of 2D Black Holes. Physical Review Letters, 2008, 100, 211302.	7.8	95
52	Gravity and the quantum. New Journal of Physics, 2005, 7, 198-198.	2.9	92
53	Radiative degrees of freedom of the gravitational field in exact general relativity. Journal of Mathematical Physics, 1981, 22, 2885-2895.	1.1	87
54	The Astrophysical Multimessenger Observatory Network (AMON). Astroparticle Physics, 2013, 45, 56-70.	4.3	83

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55	A new characterization of half-flat solutions to Einstein's equation. Communications in Mathematical Physics, 1988, 115, 631-648.	2.2	82
56	Large Quantum Gravity Effects: Unforeseen Limitations of the Classical Theory. Physical Review Letters, 1996, 77, 4864-4867.	7.8	82
57	Positive cosmological constant in loop quantum cosmology. Physical Review D, 2012, 85, .	4.7	81
58	THE COVARIANT PHASE SPACE OF ASYMPTOTICALLY FLAT GRAVITATIONAL FIELDS. , 1991, , 417-450.		78
59	Null infinity, the BMS group and infrared issues. General Relativity and Gravitation, 2018, 50, 1.	2.0	77
60	The Sagnac effect in general relativity. Journal of Mathematical Physics, 1975, 16, 341.	1.1	76
61	A short review of loop quantum gravity. Reports on Progress in Physics, 2021, 84, 042001.	20.1	76
62	Casting loop quantum cosmology in the spin foam paradigm. Classical and Quantum Gravity, 2010, 27, 135020.	4.0	75
63	An algebraic extension of Dirac quantization: Examples. Journal of Mathematical Physics, 1994, 35, 6434-6470.	1.1	74
64	Geometrical Formulation of Quantum Mechanics. , 1999, , 23-65.		74
65	Loop quantum cosmology: from pre-inflationary dynamics to observations. Classical and Quantum Gravity, 2015, 32, 234001.	4.0	73
66	Coherent State Transforms for Spaces of Connections. Journal of Functional Analysis, 1996, 135, 519-551.	1.4	71
67	On the existence of solutions to Einstein's equation with non-zero Bondi news. Communications in Mathematical Physics, 1981, 79, 581-599.	2.2	70
68	Asymptotics with a positive cosmological constant. II. Linear fields on de Sitter spacetime. Physical Review D, 2015, 92, .	4.7	69
69	Gravitons and loops. Physical Review D, 1991, 44, 1740-1755.	4.7	68
70	On conserved quantities in general relativity. Journal of Mathematical Physics, 1979, 20, 793-800.	1.1	66
71	Singularity resolution in loop quantum cosmology: A brief overview. Journal of Physics: Conference Series, 2009, 189, 012003.	0.4	64
72	Loop quantum cosmology and spin foams. Physics Letters, Section B: Nuclear, Elementary Particle and High-Energy Physics, 2009, 681, 347-352.	4.1	63

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73	Surprises in the Evaporation of 2D Black Holes. Physical Review Letters, 2011, 106, 161303.	7.8	63
74	Striking property of the gravitational Hamiltonian. Physical Review D, 1994, 50, 4944-4956.	4.7	61
75	Energy-Momentum in General Relativity. Physical Review Letters, 1979, 43, 181-184.	7.8	60
76	Relation between polymer and Fock excitations. Classical and Quantum Gravity, 2001, 18, L117-L127.	4.0	60
77	Quantum horizons and black-hole entropy: inclusion of distortion and rotation. Classical and Quantum Gravity, 2005, 22, L27-L34.	4.0	59
78	On the canonical approach to quantum gravity. Physical Review D, 1982, 26, 3342-3353.	4.7	58
79	Isolated horizons in $2 + 1$ gravity. Advances in Theoretical and Mathematical Physics, 2002, 6, 507-555.	0.6	57
80	MINISUPERSPACES: OBSERVABLES AND QUANTIZATION. International Journal of Modern Physics D, 1993, 02, 15-50.	2.1	56
81	Path integrals and the WKB approximation in loop quantum cosmology. Physical Review D, 2010, 82, .	4.7	56
82	Asymptotics with a positive cosmological constant. III. The quadrupole formula. Physical Review D, 2015, 92, .	4.7	55
83	Hairy black holes, horizon mass and solitons. Classical and Quantum Gravity, 2001, 18, 919-940.	4.0	52
84	Quantum gravity in the sky: interplay between fundamental theory and observations. Classical and Quantum Gravity, 2017, 34, 014002.	4.0	52
85	Gravitational Waves from Isolated Systems: Surprising Consequences of a Positive Cosmological Constant. Physical Review Letters, 2016, 116, 051101.	7.8	51
86	Hamiltonian formulation of the Belinskii-Khalatnikov-Lifshitz conjecture. Physical Review D, 2011, 83, .	4.7	46
87	Preferred instantaneous vacuum for linear scalar fields in cosmological space-times. Physical Review D, 2015, 91, .	4.7	46
88	Evaporation of two-dimensional black holes. Physical Review D, 2011, 83, .	4.7	44
89	On the symplectic structure of general relativity. Communications in Mathematical Physics, 1982, 86, 55-68.	2.2	42
90	Non-minimal couplings, quantum geometry and black-hole entropy. Classical and Quantum Gravity, 2003, 20, 4473-4484.	4.0	40

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91	Semiclassical states for constrained systems. Physical Review D, 2005, 72, .	4.7	40
92	Black Hole Evaporation: A Perspective from Loop Quantum Gravity. Universe, 2020, 6, 21.	2.5	40
93	Laws governing isolated horizons: inclusion of dilaton couplings. Classical and Quantum Gravity, 2000, 17, 1317-1332.	4.0	39
94	NUT 4â€momenta are forever. Journal of Mathematical Physics, 1982, 23, 2168-2178.	1.1	38
95	Generalized effective description of loop quantum cosmology. Physical Review D, 2015, 92, .	4.7	36
96	Alleviating the Tension in the Cosmic Microwave Background using Planck-Scale Physics. Physical Review Letters, 2020, 125, 051302.	7.8	35
97	Covariant entropy bound and loop quantum cosmology. Physical Review D, 2008, 78, .	4.7	33
98	Generalized Wick transform for gravity. Physical Review D, 1996, 53, R2865-R2869.	4.7	32
99	Initial conditions for cosmological perturbations. Classical and Quantum Gravity, 2017, 34, 035004.	4.0	32
100	On the relation between classical and quantum observables. Communications in Mathematical Physics, 1980, 71, 59-64.	2.2	31
101	Implications of a positive cosmological constant for general relativity. Reports on Progress in Physics, 2017, 80, 102901.	20.1	31
102	On the uniqueness of kinematics of loop quantum cosmology. Classical and Quantum Gravity, 2012, 29, 242001.	4.0	30
103	Geometry and physics of null infinity. Journal of Differential Geometry, 2015, 20, 99-122.	1.0	29
104	A curiosity concerning the role of coherent states in quantum field theory. Pramana - Journal of Physics, 1980, 15, 107-115.	1.8	28
105	On the ambiguity in the notion of transverse traceless modes of gravitational waves. General Relativity and Gravitation, 2017, 49, 1.	2.0	28
106	Unitarity and ultraviolet regularity in cosmology. Physical Review D, 2015, 91, .	4.7	27
107	A geometrical approach to external potential problems in quantum field theory. General Relativity and Gravitation, 1980, 12, 205-223.	2.0	26
108	Phenomenology with fluctuating quantum geometries in loop quantum cosmology. Classical and Quantum Gravity, 2017, 34, 074003.	4.0	26

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109	Linkages and Hamiltonians at null infinity. Journal of Mathematical Physics, 1982, 23, 2410-2417.	1.1	25
110	Hamiltonian general relativity and the Belinskiiâ€“Khalatnikovâ€“Lifshitz conjecture. Classical and Quantum Gravity, 2009, 26, 052001.	4.0	25
111	Null infinity and Killing fields. Journal of Mathematical Physics, 1980, 21, 862-867.	1.1	23
112	Introduction to Loop Quantum Gravity and Cosmology. Lecture Notes in Physics, 2013, , 31-56.	0.7	23
113	Geometric quantization and constrained systems. Journal of Mathematical Physics, 1986, 27, 1319-1330.	1.1	22
114	A generalization of tensor calculus and its applications to physics. General Relativity and Gravitation, 1982, 14, 411-428.	2.0	18
115	Dynamical black holes: Approach to the final state. Physical Review D, 2013, 88, .	4.7	18
116	Compact binary coalescences: constraints on waveforms. General Relativity and Gravitation, 2020, 52, 1.	2.0	18
117	Compact binary coalescences: The subtle issue of angular momentum. Physical Review D, 2020, 101, .	4.7	18
118	Inferring the gravitational wave memory for binary coalescence events. Physical Review D, 2021, 103, .	4.7	18
119	A note on helicity and selfâ€duality. Journal of Mathematical Physics, 1986, 27, 824-827.	1.1	17
120	On a basic conceptual confusion in gravitational radiation theory. Classical and Quantum Gravity, 2017, 34, 20LT01.	4.0	17
121	Asymptotics with a positive cosmological constant. IV. The no-incoming radiation condition. Physical Review D, 2019, 100, .	4.7	17
122	Some surprising implications of background independence in canonical quantum gravity. General Relativity and Gravitation, 2009, 41, 1927-1943.	2.0	16
123	Cosmic Tango Between the Very Small and the Very Large: Addressing CMB Anomalies Through Loop Quantum Cosmology. Frontiers in Astronomy and Space Sciences, 2021, 8, .	2.8	16
124	POLYMER GEOMETRY AT PLANCK SCALE AND QUANTUM EINSTEIN EQUATIONS. International Journal of Modern Physics D, 1996, 05, 629-648.	2.1	15
125	Emergence of classical behavior in the early Universe. Physical Review D, 2020, 102, .	4.7	15
126	Gravitational Dynamicsâ€”A Novel Shift in the Hamiltonian Paradigm. Universe, 2021, 7, 13.	2.5	15

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127	Quantum Geometry and Black Holes. , 1999, , 149-170.		12
128	Non-expanding horizons: multipoles and the symmetry group. Journal of High Energy Physics, 2022, 2022, 1.	4.7	11
129	Charges and fluxes on (perturbed) non-expanding horizons. Journal of High Energy Physics, 2022, 2022, 1.	4.7	11
130	Physics from geometry. Nature Physics, 2006, 2, 725-726.	16.7	10
131	Symmetry reduced loop quantum gravity: A birdâ€™s eye view. International Journal of Modern Physics D, 2016, 25, 1642010.	2.1	8
132	Space-like singularities of general relativity: A phantom menace?. General Relativity and Gravitation, 2022, 54, .	2.0	8
133	QUANTUM GEOMETRY AND GRAVITY: RECENT ADVANCES. , 2002, , .		7
134	Recent Developments in Quantum Gravity. Annals of the New York Academy of Sciences, 1989, 571, 16-26.	3.8	6
135	WEAK FIELD LIMIT OF GENERAL RELATIVITY IN TERMS OF NEW VARIABLES: A HAMILTONIAN FRAMEWORK. International Journal of Modern Physics D, 1994, 03, 675-693.	2.1	6
136	Space and Time: From Antiquity to Einstein and Beyond. Resonance, 2006, 11, 4-19.	0.3	5
137	The last 50 years of general relativity and gravitation: from GR3 to GR20 Warsaw conferences. General Relativity and Gravitation, 2014, 46, 1.	2.0	5
138	Time in fundamental physics. Studies in History and Philosophy of Science Part B - Studies in History and Philosophy of Modern Physics, 2015, 52, 69-74.	1.4	4
139	Black hole dynamics in general relativity. Pramana - Journal of Physics, 2007, 69, 77-92.	1.8	3
140	Response to Bryan Roberts: A new perspective on T violation. Studies in History and Philosophy of Science Part B - Studies in History and Philosophy of Modern Physics, 2015, 52, 16-20.	1.4	3
141	The Issue of the Beginning in Quantum Gravity. , 2012, , 347-363.		3
142	Loop Quantum Gravity and the Planck Regime of Cosmology. , 2014, , 323-347.		3
143	Testing gravitational waveform models using angular momentum. Physical Review D, 2021, 104, .	4.7	3
144	LOOP QUANTUM GRAVITY: FOUR RECENT ADVANCES AND A DOZEN FREQUENTLY ASKED QUESTIONS. , 2008, , .		2

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145	Some Recent Advances in Loop Quantum Cosmology. Journal of Physics: Conference Series, 2012, 360, 012001.	0.4	1
146	Quantum Space-Times. , 2010, , 163-196.		1
147	Editorial: Golden Oldies criteria and procedures. General Relativity and Gravitation, 2017, 49, 1.	2.0	0
148	HOW BLACK HOLES GROW. , 2006, , .		0
149	The Winding Road to Quantum Gravity. , 2006, , 69-92.		0
150	Self-duality, quantum gravity, Wilson loops and all that. , 1990, , 369-390.		0