

Mark A Scheel

List of Publications by Year in descending order

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Version: 2024-02-01

98
papers

8,314
citations

38660

50
h-index

43802

91
g-index

98
all docs

98
docs citations

98
times ranked

2901
citing authors

#	ARTICLE	IF	CITATIONS
1	Improved effective-one-body model of spinning, nonprecessing binary black holes for the era of gravitational-wave astrophysics with advanced detectors. <i>Physical Review D</i> , 2017, 95, .	1.6	401
2	Effective-one-body model for black-hole binaries with generic mass ratios and spins. <i>Physical Review D</i> , 2014, 89, .	1.6	360
3	Catalog of 174 Binary Black Hole Simulations for Gravitational Wave Astronomy. <i>Physical Review Letters</i> , 2013, 111, 241104.	2.9	325
4	High-accuracy comparison of numerical relativity simulations with post-Newtonian expansions. <i>Physical Review D</i> , 2007, 76, .	1.6	305
5	A new generalized harmonic evolution system. <i>Classical and Quantum Gravity</i> , 2006, 23, S447-S462.	1.5	276
6	Inspiral-merger-ringdown waveforms of spinning, precessing black-hole binaries in the effective-one-body formalism. <i>Physical Review D</i> , 2014, 89, .	1.6	265
7	Testing the No-Hair Theorem with GW150914. <i>Physical Review Letters</i> , 2019, 123, 111102.	2.9	220
8	The SXS collaboration catalog of binary black hole simulations. <i>Classical and Quantum Gravity</i> , 2019, 36, 195006.	1.5	217
9	Surrogate models for precessing binary black hole simulations with unequal masses. <i>Physical Review Research</i> , 2019, 1, .	1.3	213
10	Inspiral-merger-ringdown multipolar waveforms of nonspinning black-hole binaries using the effective-one-body formalism. <i>Physical Review D</i> , 2011, 84, .	1.6	209
11	Effects of Neutron-Star Dynamic Tides on Gravitational Waveforms within the Effective-One-Body Approach. <i>Physical Review Letters</i> , 2016, 116, 181101.	2.9	204
12	High-accuracy waveforms for binary black hole inspiral, merger, and ringdown. <i>Physical Review D</i> , 2009, 79, .	1.6	201
13	A multidomain spectral method for solving elliptic equations. <i>Computer Physics Communications</i> , 2003, 152, 253-273.	3.0	196
14	Prototype effective-one-body model for nonprecessing spinning inspiral-merger-ringdown waveforms. <i>Physical Review D</i> , 2012, 86, .	1.6	192
15	Multipolar effective-one-body waveforms for precessing binary black holes: Construction and validation. <i>Physical Review D</i> , 2020, 102, .	1.6	182
16	Solving Einstein's equations with dual coordinate frames. <i>Physical Review D</i> , 2006, 74, .	1.6	171
17	Low mass binary neutron star mergers: Gravitational waves and neutrino emission. <i>Physical Review D</i> , 2016, 93, .	1.6	157
18	Surrogate model of hybridized numerical relativity binary black hole waveforms. <i>Physical Review D</i> , 2019, 99, .	1.6	153

#	ARTICLE	IF	CITATIONS
19	Effective-one-body waveforms calibrated to numerical relativity simulations: Coalescence of nonspinning, equal-mass black holes. <i>Physical Review D</i> , 2009, 79, .	1.6	149
20	Simulations of binary black hole mergers using spectral methods. <i>Physical Review D</i> , 2009, 80, .	1.6	140
21	Black-hole–neutron-star mergers at realistic mass ratios: Equation of state and spin orientation effects. <i>Physical Review D</i> , 2013, 87, .	1.6	134
22	Numerical relativity waveform surrogate model for generically precessing binary black hole mergers. <i>Physical Review D</i> , 2017, 96, .	1.6	134
23	Evolving black hole-neutron star binaries in general relativity using pseudospectral and finite difference methods. <i>Physical Review D</i> , 2008, 78, .	1.6	133
24	Black Hole Ringdown: The Importance of Overtones. <i>Physical Review X</i> , 2019, 9, .	2.8	133
25	Neutron star-black hole mergers with a nuclear equation of state and neutrino cooling: Dependence in the binary parameters. <i>Physical Review D</i> , 2014, 90, .	1.6	132
26	Post-merger evolution of a neutron star-black hole binary with neutrino transport. <i>Physical Review D</i> , 2015, 91, .	1.6	124
27	Fast and Accurate Prediction of Numerical Relativity Waveforms from Binary Black Hole Coalescences Using Surrogate Models. <i>Physical Review Letters</i> , 2015, 115, 121102.	2.9	124
28	Effective-one-body waveforms calibrated to numerical relativity simulations: Coalescence of nonprecessing, spinning, equal-mass black holes. <i>Physical Review D</i> , 2010, 81, .	1.6	123
29	High-accuracy numerical simulation of black-hole binaries: Computation of the gravitational-wave energy flux and comparisons with post-Newtonian approximants. <i>Physical Review D</i> , 2008, 78, .	1.6	115
30	Impact of an improved neutrino energy estimate on outflows in neutron star merger simulations. <i>Physical Review D</i> , 2016, 94, .	1.6	113
31	A Surrogate model of gravitational waveforms from numerical relativity simulations of precessing binary black hole mergers. <i>Physical Review D</i> , 2017, 95, .	1.6	96
32	Simulations of unequal-mass black hole binaries with spectral methods. <i>Physical Review D</i> , 2012, 86, .	1.6	91
33	Complete waveform model for compact binaries on eccentric orbits. <i>Physical Review D</i> , 2017, 95, .	1.6	88
34	Improved methods for simulating nearly extremal binary black holes. <i>Classical and Quantum Gravity</i> , 2015, 32, 105009.	1.5	81
35	Simulating merging binary black holes with nearly extremal spins. <i>Physical Review D</i> , 2011, 83, .	1.6	79
36	SpECTRE: A task-based discontinuous Galerkin code for relativistic astrophysics. <i>Journal of Computational Physics</i> , 2017, 335, 84-114.	1.9	77

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37	Final spin and radiated energy in numerical simulations of binary black holes with equal masses and equal, aligned or antialigned spins. <i>Physical Review D</i> , 2013, 88, .	1.6	72
38	Approaching the Post-Newtonian Regime with Numerical Relativity: A Compact-Object Binary Simulation Spanning 350 Gravitational-Wave Cycles. <i>Physical Review Letters</i> , 2015, 115, 031102.	2.9	68
39	Samurai project: Verifying the consistency of black-hole-binary waveforms for gravitational-wave detection. <i>Physical Review D</i> , 2009, 79, .	1.6	67
40	Numerical binary black hole collisions in dynamical Chern-Simons gravity. <i>Physical Review D</i> , 2019, 100, .	1.6	67
41	Visualizing spacetime curvature via frame-drag vortexes and tidal tendexes: General theory and weak-gravity applications. <i>Physical Review D</i> , 2011, 84, .	1.6	64
42	Boundary conditions for the Einstein evolution system. <i>Physical Review D</i> , 2005, 71, .	1.6	59
43	High accuracy simulations of black hole binaries: Spins anti-aligned with the orbital angular momentum. <i>Physical Review D</i> , 2009, 80, .	1.6	59
44	On choosing the start time of binary black hole ringdowns. <i>Physical Review D</i> , 2018, 97, .	1.6	58
45	Black hole-neutron star mergers for $\chi > 10$. <i>Physical Review D</i> , 2012, 85, .		
46	First direct comparison of nondisrupting neutron star-black hole and binary black hole merger simulations. <i>Physical Review D</i> , 2013, 88, .	1.6	56
47	Periastron advance in spinning black hole binaries: Gravitational self-force from numerical relativity. <i>Physical Review D</i> , 2013, 88, .	1.6	54
48	Distinguishing the nature of comparable-mass neutron star binary systems with multimessenger observations: GW170817 case study. <i>Physical Review D</i> , 2019, 100, .	1.6	54
49	Numerical relativity simulation of GW150914 beyond general relativity. <i>Physical Review D</i> , 2020, 101, .	1.6	54
50	Aligned-spin neutron-star-black-hole waveform model based on the effective-one-body approach and numerical-relativity simulations. <i>Physical Review D</i> , 2020, 102, .	1.6	51
51	Periastron advance in spinning black hole binaries: comparing effective-one-body and numerical relativity. <i>Physical Review D</i> , 2013, 88, .	1.6	50
52	Optimal constraint projection for hyperbolic evolution systems. <i>Physical Review D</i> , 2004, 70, .	1.6	49
53	Testing the Black-Hole Area Law with GW150914. <i>Physical Review Letters</i> , 2021, 127, 011103.	2.9	49
54	Well-behaved harmonic time slices of a charged, rotating, boosted black hole. <i>Physical Review D</i> , 1997, 56, 4775-4781.	1.6	46

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55	3D simulations of linearized scalar fields in Kerr spacetime. <i>Physical Review D</i> , 2004, 69, .	1.6	45
56	Accuracy and precision of gravitational-wave models of inspiraling neutron star-black hole binaries with spin: Comparison with matter-free numerical relativity in the low-frequency regime. <i>Physical Review D</i> , 2015, 92, .	1.6	44
57	Comparing gravitational waveform extrapolation to Cauchy-characteristic extraction in binary black hole simulations. <i>Physical Review D</i> , 2013, 88, .	1.6	43
58	Binary neutron stars with arbitrary spins in numerical relativity. <i>Physical Review D</i> , 2015, 92, .	1.6	41
59	Suitability of hybrid gravitational waveforms for unequal-mass binaries. <i>Physical Review D</i> , 2013, 87, .	1.6	39
60	Simulations of inspiraling and merging double neutron stars using the Spectral Einstein Code. <i>Physical Review D</i> , 2016, 93, .	1.6	39
61	Unequal mass binary neutron star simulations with neutrino transport: Ejecta and neutrino emission. <i>Physical Review D</i> , 2020, 101, .	1.6	38
62	Comparing post-Newtonian and numerical relativity precession dynamics. <i>Physical Review D</i> , 2015, 92, .	1.6	37
63	Accuracy of binary black hole waveform models for aligned-spin binaries. <i>Physical Review D</i> , 2016, 93, .	1.6	37
64	Computation of displacement and spin gravitational memory in numerical relativity. <i>Physical Review D</i> , 2020, 102, .	1.6	37
65	Adding gravitational memory to waveform catalogs using BMS balance laws. <i>Physical Review D</i> , 2021, 103, .	1.6	35
66	Testing the accuracy and stability of spectral methods in numerical relativity. <i>Physical Review D</i> , 2007, 75, .	1.6	34
67	Toward stable 3D numerical evolutions of black-hole spacetimes. <i>Physical Review D</i> , 2002, 66, .	1.6	33
68	Controlling the growth of constraints in hyperbolic evolution systems. <i>Physical Review D</i> , 2004, 69, .	1.6	31
69	Momentum flow in black-hole binaries. II. Numerical simulations of equal-mass, head-on mergers with antiparallel spins. <i>Physical Review D</i> , 2010, 82, .	1.6	30
70	Magnetic effects on the low- T W instability in differentially rotating neutron stars. <i>Physical Review D</i> , 2014, 90, .	1.6	28
71	Stability of nonspinning effective-one-body model in approximating two-body dynamics and gravitational-wave emission. <i>Physical Review D</i> , 2014, 89, .	1.6	27
72	Gravitational waveforms for neutron star binaries from binary black hole simulations. <i>Physical Review D</i> , 2016, 93, .	1.6	27

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73	Evolution of the magnetized, neutrino-cooled accretion disk in the aftermath of a black hole-neutron star binary merger. <i>Physical Review D</i> , 2018, 97, .	1.6	27
74	Improved Cauchy-characteristic evolution system for high-precision numerical relativity waveforms. <i>Physical Review D</i> , 2020, 102, .	1.6	26
75	Black hole-neutron star mergers using a survey of finite-temperature equations of state. <i>Physical Review D</i> , 2018, 98, .	1.6	22
76	High precision ringdown modeling: Multimode fits and BMS frames. <i>Physical Review D</i> , 2022, 105, .	1.6	21
77	Initial data for Einstein's equations with superposed gravitational waves. <i>Physical Review D</i> , 2005, 71, .	1.6	16
78	Gauge drivers for the generalized harmonic Einstein equations. <i>Physical Review D</i> , 2008, 77, .	1.6	16
79	Template banks for binary black hole searches with numerical relativity waveforms. <i>Physical Review D</i> , 2014, 89, .	1.6	16
80	Measuring the properties of nearly extremal black holes with gravitational waves. <i>Physical Review D</i> , 2018, 98, .	1.6	16
81	Extending gravitational wave extraction using Weyl characteristic fields. <i>Physical Review D</i> , 2021, 103, .	1.6	16
82	Comparison of binary black hole initial data sets. <i>Physical Review D</i> , 2018, 98, .	1.6	15
83	Fixing the BMS frame of numerical relativity waveforms. <i>Physical Review D</i> , 2021, 104, .	1.6	15
84	Detection and characterization of spin-orbit resonances in the advanced gravitational wave detectors era. <i>Physical Review D</i> , 2018, 98, .	1.6	13
85	Spectral Cauchy-characteristic extraction of the gravitational wave news function. <i>Physical Review D</i> , 2020, 102, .	1.6	13
86	Comparing remnant properties from horizon data and asymptotic data in numerical relativity. <i>Physical Review D</i> , 2021, 103, .	1.6	13
87	Toroidal horizons in binary black hole inspirals. <i>Physical Review D</i> , 2012, 85, .	1.6	12
88	Initial data for black hole-neutron star binaries, with rotating stars. <i>Classical and Quantum Gravity</i> , 2016, 33, 225012.	1.5	10
89	Critical behavior in 3D gravitational collapse of massless scalar fields. <i>Physical Review D</i> , 2019, 99, .	1.6	10
90	Comparison of momentum transport models for numerical relativity. <i>Physical Review D</i> , 2020, 102, .	1.6	10

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91	High-accuracy waveforms for black hole-neutron star systems with spinning black holes. Physical Review D, 2021, 103, .	1.6	10
92	Systematic effects from black hole-neutron star waveform model uncertainties on the neutron star equation of state. Physical Review D, 2019, 99, .	1.6	8
93	Gravitational-wave echoes from numerical-relativity waveforms via spacetime construction near merging compact objects. Physical Review D, 2022, 105, .	1.6	8
94	Are different approaches to constructing initial data for binary black hole simulations of the same astrophysical situation equivalent?. Physical Review D, 2012, 86, .	1.6	5
95	Extending superposed harmonic initial data to higher spin. Physical Review D, 2021, 103, .	1.6	2
96	A scalable elliptic solver with task-based parallelism for the SpECTRE numerical relativity code. Physical Review D, 2022, 105, .	1.6	2
97	A New Generalized Harmonic Evolution System. , 2006, , .		0
98	REDUCING ORBITAL ECCENTRICITY IN BINARY BLACK HOLE SIMULATIONS. , 2008, , .		0