

Stuart L Shapiro

List of Publications by Year in descending order

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108
papers

11,767
citations

47006

47
h-index

49909

87
g-index

111
all docs

111
docs citations

111
times ranked

5736
citing authors

#	ARTICLE	IF	CITATIONS
1	Numerical integration of Einstein's field equations. <i>Physical Review D</i> , 1998, 59, .	4.7	948
2	Rapidly rotating neutron stars in general relativity: Realistic equations of state. <i>Astrophysical Journal</i> , 1994, 424, 823.	4.5	506
3	GW170817, general relativistic magnetohydrodynamic simulations, and the neutron star maximum mass. <i>Physical Review D</i> , 2018, 97, .	4.7	345
4	On the Maximum Mass of Differentially Rotating Neutron Stars. <i>Astrophysical Journal</i> , 2000, 528, L29-L32.	4.5	266
5	Spin-up of a rapidly rotating star by angular momentum loss - Effects of general relativity. <i>Astrophysical Journal</i> , 1992, 398, 203.	4.5	219
6	Rapidly rotating polytropes in general relativity. <i>Astrophysical Journal</i> , 1994, 422, 227.	4.5	193
7	Spin, Accretion, and the Cosmological Growth of Supermassive Black Holes. <i>Astrophysical Journal</i> , 2005, 620, 59-68.	4.5	177
8	Collapse of a Rotating Supermassive Star to a Supermassive Black Hole: Fully Relativistic Simulations. <i>Astrophysical Journal</i> , 2002, 572, L39-L43.	4.5	164
9	BINARY NEUTRON STAR MERGERS: A JET ENGINE FOR SHORT GAMMA-RAY BURSTS. <i>Astrophysical Journal Letters</i> , 2016, 824, L6.	8.3	163
10	General relativistic simulations of magnetized binary neutron star mergers. <i>Physical Review D</i> , 2008, 78, .	4.7	160
11	Relativistic magnetohydrodynamics in dynamical spacetimes: Numerical methods and tests. <i>Physical Review D</i> , 2005, 72, .	4.7	143
12	Evolution of magnetized, differentially rotating neutron stars: Simulations in full general relativity. <i>Physical Review D</i> , 2006, 73, .	4.7	140
13	Differential Rotation in Neutron Stars: Magnetic Braking and Viscous Damping. <i>Astrophysical Journal</i> , 2000, 544, 397-408.	4.5	137
14	General relativistic simulations of black-hole-neutron-star mergers: Effects of black-hole spin. <i>Physical Review D</i> , 2009, 79, .	4.7	135
15	Fully general relativistic simulations of black hole-neutron star mergers. <i>Physical Review D</i> , 2008, 77, .	4.7	133
16	The Bar-Mode Instability in Differentially Rotating Neutron Stars: Simulations in Full General Relativity. <i>Astrophysical Journal</i> , 2000, 542, 453-463.	4.5	132
17	RELATIVISTIC SIMULATIONS OF BLACK HOLE-NEUTRON STAR COALESCENCE: THE JET EMERGES. <i>Astrophysical Journal Letters</i> , 2015, 806, L14.	8.3	131
18	Error-analysis and comparison to analytical models of numerical waveforms produced by the NRAR Collaboration. <i>Classical and Quantum Gravity</i> , 2013, 31, 025012.	4.0	123

#	ARTICLE	IF	CITATIONS
19	Magnetorotational collapse of massive stellar cores to neutron stars: Simulations in full general relativity. <i>Physical Review D</i> , 2006, 74, .	4.7	114
20	Collapse of Magnetized Hypermassive Neutron Stars in General Relativity. <i>Physical Review Letters</i> , 2006, 96, 031101.	7.8	112
21	General relativistic hydrodynamics with viscosity: Contraction, catastrophic collapse, and disk formation in hypermassive neutron stars. <i>Physical Review D</i> , 2004, 69, .	4.7	110
22	Relativistic simulations of eccentric binary neutron star mergers: One-arm spiral instability and effects of neutron star spin. <i>Physical Review D</i> , 2016, 93, .	4.7	102
23	Relativistic magnetohydrodynamics in dynamical spacetimes: A new adaptive mesh refinement implementation. <i>Physical Review D</i> , 2010, 82, .	4.7	101
24	Binary Black-Hole Mergers in Magnetized Disks: Simulations in Full General Relativity. <i>Physical Review Letters</i> , 2012, 109, 221102.	7.8	98
25	Binary black hole mergers in gaseous environments: “Binary Bondi” and “binary Bondi-Hoyle-Lyttleton” accretion. <i>Physical Review D</i> , 2010, 81, .	4.7	95
26	IllinoisGRMHD: an open-source, user-friendly GRMHD code for dynamical spacetimes. <i>Classical and Quantum Gravity</i> , 2015, 32, 175009.	4.0	95
27	Magnetized Hypermassive Neutron-Star Collapse: A Central Engine for Short Gamma-Ray Bursts. <i>Physical Review Letters</i> , 2006, 96, 031102.	7.8	92
28	Accretion disks around binary black holes of unequal mass: General relativistic magnetohydrodynamic simulations near decoupling. <i>Physical Review D</i> , 2014, 89, .	4.7	87
29	Relativistic radiation magnetohydrodynamics in dynamical spacetimes: Numerical methods and tests. <i>Physical Review D</i> , 2008, 78, .	4.7	86
30	General relativistic simulations of black-hole “neutron-star mergers: Effects of magnetic fields. <i>Physical Review D</i> , 2012, 85, .	4.7	85
31	One-arm spiral instability in hypermassive neutron stars formed by dynamical-capture binary neutron star mergers. <i>Physical Review D</i> , 2015, 92, .	4.7	84
32	Filling the holes: Evolving excised binary black hole initial data with puncture techniques. <i>Physical Review D</i> , 2007, 76, .	4.7	79
33	Galactic Center Gamma-Ray Excess from Dark Matter Annihilation: Is There a Black Hole Spike?. <i>Physical Review Letters</i> , 2014, 113, 151302.	7.8	74
34	General-relativistic simulations of binary black hole-neutron stars: Precursor electromagnetic signals. <i>Physical Review D</i> , 2013, 88, .	4.7	72
35	Hydrodynamic simulations in $3+1$ general relativity. <i>Physical Review D</i> , 2003, 67, .	4.7	71
36	Relativistic magnetohydrodynamics in dynamical spacetimes: Improved electromagnetic gauge condition for adaptive mesh refinement grids. <i>Physical Review D</i> , 2012, 85, .	4.7	69

#	ARTICLE	IF	CITATIONS
37	Equilibrium, stability, and orbital evolution of close binary systems. <i>Astrophysical Journal</i> , 1994, 423, 344.	4.5	69
38	Dynamical evolution of black hole-neutron star binaries in general relativity: Simulations of tidal disruption. <i>Physical Review D</i> , 2006, 73, .	4.7	66
39	Computing supernova collapse to neutron stars and black holes. <i>Astrophysical Journal</i> , 1995, 443, 717.	4.5	65
40	Accretion disks around binary black holes of unequal mass: General relativistic MHD simulations of postdecoupling and merger. <i>Physical Review D</i> , 2014, 90, .	4.7	64
41	CW190814: Spin and Equation of State of a Neutron Star Companion. <i>Astrophysical Journal</i> , 2020, 905, 48.	4.5	63
42	General-relativistic simulations of black-hole-neutron-star mergers: Effects of tilted magnetic fields. <i>Physical Review D</i> , 2012, 86, .	4.7	62
43	Delayed Collapse of Hot Neutron Stars to Black Holes via Hadronic Phase Transitions. <i>Astrophysical Journal</i> , 1996, 468, 823.	4.5	60
44	Quasiequilibrium black hole-neutron star binaries in general relativity. <i>Physical Review D</i> , 2007, 75, .	4.7	51
45	Merger of binary white dwarf-neutron stars: Simulations in full general relativity. <i>Physical Review D</i> , 2011, 84, .	4.7	51
46	Black hole-neutron star binaries in general relativity: Effects of neutron star spin. <i>Physical Review D</i> , 2005, 72, .	4.7	50
47	Relativistic black hole-neutron star binaries in quasiequilibrium: Effects of the black hole excision boundary condition. <i>Physical Review D</i> , 2008, 77, .	4.7	47
48	Cauchy-perturbative matching and outer boundary conditions: Computational studies. <i>Physical Review D</i> , 1999, 59, .	4.7	46
49	Collapse of a Rotating Supermassive Star to a Supermassive Black Hole: Analytic Determination of the Black Hole Mass and Spin. <i>Astrophysical Journal</i> , 2002, 577, 904-908.	4.5	44
50	Effects of spin on magnetized binary neutron star mergers and jet launching. <i>Physical Review D</i> , 2019, 99, .	4.7	39
51	Quasiequilibrium sequences of black-hole-neutron-star binaries in general relativity. <i>Physical Review D</i> , 2006, 74, .	4.7	37
52	Magnetohydrodynamic simulations of binary neutron star mergers in general relativity: Effects of magnetic field orientation on jet launching. <i>Physical Review D</i> , 2020, 101, .	4.7	37
53	Magnetic Braking and Viscous Damping of Differential Rotation in Cylindrical Stars. <i>Astrophysical Journal</i> , 2003, 599, 1272-1292.	4.5	36
54	Computing the Delayed Collapse of Hot Neutron Stars to Black Holes. <i>Astrophysical Journal</i> , 1996, 458, 680.	4.5	36

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55	Black hole-neutron star binaries in general relativity: Quasiequilibrium formulation. <i>Physical Review D</i> , 2004, 70, .	4.7	35
56	Jet launching from binary black hole-neutron star mergers: Dependence on black hole spin, binary mass ratio, and magnetic field orientation. <i>Physical Review D</i> , 2018, 98, .	4.7	35
57	General relativistic magnetohydrodynamics simulations of prompt-collapse neutron star mergers: The absence of jets. <i>Physical Review D</i> , 2017, 96, .	4.7	34
58	Black holes, disks, and jets following binary mergers and stellar collapse: The narrow range of electromagnetic luminosities and accretion rates. <i>Physical Review D</i> , 2017, 95, .	4.7	33
59	Relativistic hydrodynamics in the presence of puncture black holes. <i>Physical Review D</i> , 2007, 76, .	4.7	32
60	Merger of white dwarf-neutron star binaries: Prelude to hydrodynamic simulations in general relativity. <i>Physical Review D</i> , 2009, 80, .	4.7	31
61	Weak annihilation cusp inside the dark matter spike about a black hole. <i>Physical Review D</i> , 2016, 93, .	4.7	31
62	Numerical evolution of black holes with a hyperbolic formulation of general relativity. <i>Physical Review D</i> , 1997, 56, 6320-6335.	4.7	30
63	A new scheme for matching general relativistic ideal magnetohydrodynamics to its force-free limit. <i>Physical Review D</i> , 2013, 88, .	4.7	29
64	Disks around merging binary black holes: From GW150914 to supermassive black holes. <i>Physical Review D</i> , 2018, 97, .	4.7	29
65	Head-on collisions of binary white dwarf-neutron stars: Simulations in full general relativity. <i>Physical Review D</i> , 2011, 83, .	4.7	28
66	Magnetorotational collapse of supermassive stars: Black hole formation, gravitational waves, and jets. <i>Physical Review D</i> , 2017, 96, .	4.7	27
67	Quasi-equilibrium binary black hole initial data for dynamical evolutions. <i>Physical Review D</i> , 2004, 70, .	4.7	26
68	Pulsar spin-down luminosity: Simulations in general relativity. <i>Physical Review D</i> , 2014, 89, .	4.7	26
69	Black Hole Window into $\langle \sigma \rangle$ -Wave Dark Matter Annihilation. <i>Physical Review Letters</i> , 2015, 115, 231302.	7.8	26
70	Radiation of Angular Momentum by Neutrinos from Merged Binary Neutron Stars. <i>Astrophysical Journal</i> , 1998, 504, 431-441.	4.5	24
71	Collapse of Uniformly Rotating Stars to Black Holes and the Formation of Disks. <i>Astrophysical Journal</i> , 2004, 610, 913-919.	4.5	24
72	Self-interacting dark matter cusps around massive black holes. <i>Physical Review D</i> , 2014, 89, .	4.7	23

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73	Effect of spin on the inspiral of binary neutron stars. <i>Physical Review D</i> , 2019, 100, .	4.7	22
74	Treating instabilities in a hyperbolic formulation of Einstein's equations. <i>Physical Review D</i> , 1998, 58, .	4.7	21
75	Radiation from Stellar Collapse to a Black Hole. <i>Astrophysical Journal</i> , 1996, 472, 308-326.	4.5	19
76	Comparing the inspiral of irrotational and corotational binary neutron stars. <i>Physical Review D</i> , 2001, 65, .	4.7	18
77	Accretion onto a small black hole at the center of a neutron star. <i>Physical Review D</i> , 2021, 103, .	4.7	18
78	Multimessenger Binary Mergers Containing Neutron Stars: Gravitational Waves, Jets, and γ -Ray Bursts. <i>Frontiers in Astronomy and Space Sciences</i> , 2021, 8, .	2.8	17
79	Formalism for the construction of binary neutron stars with arbitrary circulation. <i>Physical Review D</i> , 2009, 80, .	4.7	16
80	Constant circulation sequences of binary neutron stars and their spin characterization. <i>Physical Review D</i> , 2018, 98, .	4.7	16
81	Jet launching from binary neutron star mergers: Incorporating neutrino transport and magnetic fields. <i>Physical Review D</i> , 2022, 105, .	4.7	16
82	Great Impostors: Extremely Compact, Merging Binary Neutron Stars in the Mass Gap Posing as Binary Black Holes. <i>Physical Review Letters</i> , 2020, 124, 071101.	7.8	15
83	Black hole-neutron star coalescence: Effects of the neutron star spin on jet launching and dynamical ejecta mass. <i>Physical Review D</i> , 2020, 102, .	4.7	15
84	Relativistic Bondi accretion for stiff equations of state. <i>Monthly Notices of the Royal Astronomical Society</i> , 2021, 502, 3003-3011.	4.4	14
85	Simulating the magnetorotational collapse of supermassive stars: Incorporating gas pressure perturbations and different rotation profiles. <i>Physical Review D</i> , 2018, 98, .	4.7	13
86	Maximally rotating supermassive stars at the onset of collapse: the perturbative effects of gas pressure, magnetic fields, dark matter, and dark energy. <i>Monthly Notices of the Royal Astronomical Society</i> , 2018, 477, 3694-3710.	4.4	13
87	Dynamical stability of quasitoroidal differentially rotating neutron stars. <i>Physical Review D</i> , 2019, 100, .	4.7	13
88	Thermal radiation from stellar collapse to a black hole. <i>Physical Review D</i> , 1989, 40, 1858-1867.	4.7	12
89	Improved moving puncture gauge conditions for compact binary evolutions. <i>Physical Review D</i> , 2014, 90, .	4.7	12
90	Magnetic braking and damping of differential rotation in massive stars. <i>Physical Review D</i> , 2019, 99, .	4.7	11

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91	Complete initial value spacetimes containing black holes in general relativity: Application to black hole-disk systems. <i>Physical Review D</i> , 2019, 99, .	4.7	11
92	Dynamically Stable Ergostars Exist: General Relativistic Models and Simulations. <i>Physical Review Letters</i> , 2019, 123, 231103.	7.8	10
93	Neutron stars harboring a primordial black hole: Maximum survival time. <i>Physical Review D</i> , 2021, 103, .	4.7	10
94	Magnetohydrodynamic Simulations of Self-Consistent Rotating Neutron Stars with Mixed Poloidal and Toroidal Magnetic Fields. <i>Physical Review Letters</i> , 2022, 128, 061101.	7.8	10
95	Gravitational wave trains in the quasiequilibrium approximation: A model problem in scalar gravitation. <i>Physical Review D</i> , 2001, 63, .	4.7	9
96	Gravitational wave content and stability of uniformly, rotating, triaxial neutron stars in general relativity. <i>Physical Review D</i> , 2017, 95, .	4.7	9
97	Gravitational waves from disks around spinning black holes: Simulations in full general relativity. <i>Physical Review D</i> , 2021, 103, .	4.7	8
98	Jet launching from merging magnetized binary neutron stars with realistic equations of state. <i>Physical Review D</i> , 2021, 104, .	4.7	7
99	Accretion onto black holes inside neutron stars with piecewise-polytropic equations of state: Analytic and numerical treatments. <i>Physical Review D</i> , 2021, 104, .	4.7	7
100	Star clusters, self-interacting dark matter halos, and black hole cusps: The fluid conduction model and its extension to general relativity. <i>Physical Review D</i> , 2018, 98, .	4.7	6
101	Black Hole-Neutron Star Binary Merger Calculations: GRB Progenitors and the Stability of Mass Transfer. <i>AIP Conference Proceedings</i> , 2006, , .	0.4	4
102	Locating ergostar models in parameter space. <i>Physical Review D</i> , 2020, 101, .	4.7	4
103	Maximally rotating supermassive stars at the onset of collapse: effects of gas pressure. <i>Monthly Notices of the Royal Astronomical Society</i> , 2019, 488, 4195-4206.	4.4	3
104	Magnetic ergostars, jet formation, and gamma-ray bursts: Ergoregions versus horizons. <i>Physical Review D</i> , 2020, 102, .	4.7	3
105	Numerical Relativity at the Frontier. <i>Progress of Theoretical Physics Supplement</i> , 2006, 163, 100-119.	0.1	2
106	Relativistic radiation hydrodynamics in a reference-metric formulation. <i>Physical Review D</i> , 2020, 102, .	4.7	2
107	THE FINAL FATE OF BINARY NEUTRON STARS: WHAT HAPPENS AFTER THE MERGER?. , 2008, , .		0
108	MAGNETIZED HYPERMASSIVE NEUTRON STAR COLLAPSE: A CANDIDATE CENTRAL ENGINE FOR SHORT-HARD GRBs. , 2008, , .		0