W J Nellis

List of Publications by Year
in descending order

110 papers	7,568 citations	53794 45 h-index	51608 86 g-index
115 all docs	115 docs citations	115 times ranked	2822 citing authors

#	Article	IF	Citations
1	Metallization of Fluid Molecular Hydrogen at 140 GPa (1.4 Mbar). Physical Review Letters, 1996, 76, 1860-1863.	7.8	719
2	Shock compression of aluminum, copper, and tantalum. Journal of Applied Physics, 1981, 52, 3363-3374.	2.5	527
3	The equation of state of platinum to 660 GPa (6.6 Mbar). Journal of Applied Physics, 1989, 66, 2962-2967.	2.5	498
4	Equation of state and electrical conductivity of water and ammonia shocked to the 100 GPa (1 Mbar) pressure range. Journal of Chemical Physics, 1982, 76, 6273-6281.	3.0	250
5	Minimum metallic conductivity of fluid hydrogen at 140 GPa (1.4 Mbar). Physical Review B, 1999, 59, 3434-3449.	3.2	234
6	Equationâ€ofâ€state data for molecular hydrogen and deuterium at shock pressures in the range 2â€“76 GPa	3.0	232
7	The ruby pressure standard to 150GPa. Journal of Applied Physics, 2005, 98, 114905.	2.5	231
8	Temperature measurements and dissociation of shock-compressed liquid deuterium and hydrogen. Physical Review B, 1995, 52, 15835-15845.	3.2	222
9	Metals physics at ultrahigh pressure: Aluminum, copper, and lead as prototypes. Physical Review Letters, 1988, 60, 1414-1417.	7.8	220
10	Dynamic compression of materials: metallization of fluid hydrogen at high pressures. Reports on Progress in Physics, 2006, 69, 1479-1580.	20.1	192
11	Shock compression of liquid argon, nitrogen, and oxygen to 90 GPa (900 kbar). Journal of Chemical Physics, 1980, 73, 6137-6145.	3.0	182
12	The temperature of shockâ€compressed water. Journal of Chemical Physics, 1982, 76, 6282-6286.	3.0	179
13	Shock-induced martensitic phase transformation of oriented graphite to diamond. Nature, 1991, 349, 317-319.	27.8	169
14	Interior Structure of Neptune: Comparison with Uranus. Science, 1991, 253, 648-651.	12.6	157
15	Equation of state of Al, Cu, Mo, and Pb at shock pressures up to 2.4 TPa (24 Mbar). Journal of Applied Physics, 1991, 69, 2981-2986.	2.5	146
16	Shock compression of liquid deuterium up to109GPa. Physical Review B, 2005, 71, .	3.2	137
17	Shock compression of liquid carbon monoxide and methane to 90 GPa (900 kbar). Journal of Chemical Physics, 1981, 75, 3055-3063.	3.0	134
18	Shock Compression of Liquid Helium to 56 GPa (560 kbar). Physical Review Letters, 1984, 53, 1248-1251.	7.8	121

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19	Diagnostic system of the Lawrence Livermore National Laboratory twoâ€stage lightâ€gas gun. Review of Scientific Instruments, 1981, 52, 347-359.	1.3	120
20	Equationâ€ofâ€state, shockâ€temperature, and electricalâ€conductivity data of dense fluid nitrogen in the region of the dissociative phase transition. Journal of Chemical Physics, 1991, 94, 2244-2257.	3.0	118
21	Equation-of-state measurements for aluminum, copper, and tantalum in the pressure range 80â€“440 GPa (0.8â€“4.4 Mbar). Journal of Applied Physics, 2003, 93, 304-310.	2.5	118
22	Phase Transition in Fluid Nitrogen at High Densities and Temperatures. Physical Review Letters, 1984, 53, 1661-1664.	7.8	117
23	Electronic energy gap of molecular hydrogen from electrical conductivity measurements at high shock pressures. Physical Review Letters, 1992, 68, 2937-2940.	7.8	113
24	Molecular Dissociation and Shock-Induced Cooling in Fluid Nitrogen at High Densities and Temperatures. Physical Review Letters, 1986, 57, 2419-2422.	7.8	111
25	Equation of state and optical luminosity of benzene, polybutene, and polyethylene shocked to 210 GPa (2.1 Mbar). Journal of Chemical Physics, 1984, 80, 2789-2799.	3.0	109
26	The Nature of the Interior of Uranus Based on Studies of Planetary Ices at High Dynamic Pressure. Science, 1988, 240, 779-781.	12.6	102
27	Metallization and Electrical Conductivity of Hydrogen in Jupiter. Science, 1996, 273, 936-938.	12.6	99
28	Spontaneous Raman Scattering from Shocked Water. Physical Review Letters, 1985, 55, 2433-2436.	7.8	95
29	Phase Transformations in Carbon Fullerenes at High Shock Pressures. Science, 1991, 254, 1489-1491.	12.6	95
30	High Pressure Insulator-Metal Transition in Molecular Fluid Oxygen. Physical Review Letters, 2001, 86, 3108-3111.	7.8	92
31	Shock metamorphism of quartz with initial temperatures ?170 to + 1000ï¿½ C. Physics and Chemistry of Minerals, 1992, 19, 267.	0.8	91
32	Temperature measurements of shock-compressed liquid hydrogen: implications for the interior of Jupiter. Science, 1995, 269, 1249-1252.	12.6	87
33	Electrical conductivity of water compressed dynamically to pressures of 70â€“180 GPa (0.7â€“1.8 Mbar). Journal of Chemical Physics, 2001, 114, 1361-1365.	3.0	87
34	High-pressure equations of state of Al, Cu, Ta, and W. Journal of Applied Physics, 2005, 98, 073526.	2.5	84
35	Metallization of Fluid Nitrogen and the Mott Transition in Highly Compressed Low-ZFluids. Physical Review Letters, 2003, 90, 245501.	7.8	80
36	Diamondlike metastable carbon phases from shockâ€compressed C60films. Applied Physics Letters, 1992, 61, 273-275.	3.3	71

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37	Equation of state and electrical conductivity of â€œsynthetic Uranus,â€•a mixture of water, ammonia, and isopropanol, at shock pressure up to 200 GPa (2 Mbar). Journal of Chemical Physics, 1997, 107, 9096-9100.	3.0	69
38	Electrical resistivity of singleâ€•crystal Al2O3shockâ€•compressed in the pressure range 91â€“220 GPa (0.91â€“2.20 Mbar). Journal of Applied Physics, 1996, 80, 1522-1525.	2.5	64
39	Equation of state of shockâ€•compressed liquids: Carbon dioxide and air. Journal of Chemical Physics, 1991, 95, 5268-5272.	3.0	63
40	Shock temperature measurements of planetary ices: NH3, CH4, and â€˜â€˜synthetic Uranusâ€™â€™. Journal of Chemical Physics, 1990, 93, 8235-8239.	3.0	56
41	Shock Compression of Deuterium near 100 GPa Pressures. Physical Review Letters, 2002, 89, 165502.	7.8	54
42	Response of seven crystallographic orientations of sapphire crystals to shock stresses of 16â€“86 GPa. Journal of Applied Physics, 2009, 106, 043524.	2.5	53
43	Electrical conductivities of methane, benzene, and polybutene shock compressed to 60 GPa (600 kbar). Journal of Chemical Physics, 2001, 115, 1015-1019.	3.0	52
44	Dynamic compaction of copper powder: Computation and experiment. Applied Physics Letters, 1994, 65, 418-420.	3.3	50
45	Shock Amorphization of Cristobalite. Science, 1993, 259, 663-666.	12.6	49
46	Metallization of fluid hydrogen. Philosophical Transactions Series A, Mathematical, Physical, and Engineering Sciences, 1998, 356, 119-138.	3.4	44
47	Transition to a Virtually Incompressible Oxide Phase at a Shock Pressure of 120ÂGPa (1.2ÂMbar):Gd3Ga5O12. Physical Review Letters, 2006, 96, 105504.	7.8	44
48	Shock Compression of Liquid Xenon to 130 GPa (1.3 Mbar). Physical Review Letters, 1982, 48, 816-818.	7.8	43
49	The unusual magnetic fields of Uranus and Neptune. Modern Physics Letters B, 2015, 29, 1430018.	1.9	43
50	Equation of state of molecular hydrogen and deuterium from shock-wave experiments to 760 kbar. Physical Review A, 1983, 27, 608-611.	2.5	42
51	Carbon at pressures in the range 0.1â€“1 TPa (10 Mbar). Journal of Applied Physics, 2001, 90, 696-698.	2.5	38
52	Silica at ultrahigh temperature and expanded volume. Applied Physics Letters, 1984, 45, 626-628.	3.3	37
53	Electrical conductivity and equation of state of shockâ€•compressed liquid oxygen. Journal of Chemical Physics, 1988, 88, 5042-5050.	3.0	36
54	Equation of state of beryllium at shock pressures of 0.4â€“1.1 TPa (4â€“11 Mbar). Journal of Applied Physics, 1997, 82, 2225-2227.	2.5	36

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55	Shock temperatures and melting in CsI. Physical Review B, 1985, 31, 1457-1462.	3.2	35
56	Calibration of the ruby pressure scale to 150 GPa. Physica Status Solidi (B): Basic Research, 2007, 244, 460-467.	1.5	30
57	Metastable solid metallic hydrogen. The Philosophical Magazine: Physics of Condensed Matter B, Statistical Mechanics, Electronic, Optical and Magnetic Properties, 1999, 79, 655-661.	0.6	22
58	Wigner and Huntington: the long quest for metallic hydrogen. High Pressure Research, 2013, 33, 369-376.	1.2	19
59	Shock compaction of SmCo5particles. Journal of Applied Physics, 1996, 79, 9236-9244.	2.5	16
60	Shock compression of a free-electron gas. Journal of Applied Physics, 2003, 94, 272-275.	2.5	16
61	Dynamic compression of dense oxide (Gd3Ga5O12) from 0.4 to 2.6â€‰TPa: Universal Hugoniot of fluid metals. Scientific Reports, 2016, 6, 26000.	3.3	16
62	Metastable A15 phase Nb3Si synthesized by high dynamic pressure. High Pressure Research, 1989, 1, 267-289.	1.2	13
63	Laboratory simulation of explosive volcanic loading and implications for the cause of the K/T boundary. Geophysical Research Letters, 1992, 19, 1391-1394.	4.0	11
64	Universal behaviour of nonmetalâ€“metal Mott transitions in fluid H, N, O, Rb, and Cs. Journal of Physics Condensed Matter, 2004, 16, S923-S928.	1.8	11
65	Entropy-dominated dissipation in sapphire shock-compressed up to 400 GPa (4 Mbar). Journal of Physics: Conference Series, 2010, 215, 012148.	0.4	11
66	Superconductivity of Nb films recovered from megabar dynamic pressures. Applied Physics Letters, 1986, 49, 413-415.	3.3	9
67	Dynamic Compaction of Al2O3-ZrO2 Compositions. Journal of the American Ceramic Society, 1994, 77, 1605-1612.	3.8	9
68	Shock wave profile study of tuff from the Nevada Test Site. Journal of Geophysical Research, 1994, 99, 15529.	3.3	9
69	Development of novel microstructures in zirconia-toughened alumina using rapid solidification and shock compaction. Journal of Materials Research, 1996, 11, 110-119.	2.6	9
70	Equation of state of 1â€butene shocked to 54 GPa (540 kbar). Journal of Chemical Physics, 1988, 88, 7706-7708.	3.0	8
71	<mml:math xmlns:mml="http://www.w3.org/1998/Math/MathML" display="inline"><mml:mrow><mml:msub><mml:mrow><mml:mtext>Al</mml:mtext></mml:mrow><mml:mn>2</mml:mn></mml:msub> a metallic glass at 300 GPa. Physical Review B, 2010, 82, .	3.2	8
72	The electrical conductivity of Al2O3 under shock-compression. Scientific Reports, 2015, 5, 12823.	3.3	8

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73	Metallic Hydrogen at High Pressures and Temperatures in Jupiter. Chemistry - A European Journal, 1997, 3, 1921-1924.	3.3	7
74	Metastable solid metallic hydrogen. The Philosophical Magazine: Physics of Condensed Matter B, Statistical Mechanics, Electronic, Optical and Magnetic Properties, 1999, 79, 655-661.	0.6	7
75	Synthesis Of Metastable Superconductors By High Dynamic Pressure. Proceedings of SPIE, 1988, , .	0.8	6
76	Microstructures of Nb Films Recovered from Megabar Dynamic Pressures / Die GefÃ¼geentwicklung von Nb-Schichten, die nach Behandlung mit dynamischen DrÃ¼cken im Megabarbereich zurÃ¼ckgewonnen wurden. Praktische Metallographie/Practical Metallography, 1990, 27, 391-405.	0.3	6
77	Sound velocities in shocked liquid deuterium. , 1998, , .		5
78	Deuterium Hugoniot up to 120 Gpa (1.2 Mbar). Astrophysics and Space Science, 2005, 298, 141-145.	1.4	5
79	Systematics of compression of hard materials. Journal of Physics: Conference Series, 2008, 121, 062005.	0.4	5
80	The Transition to the Metallic State in Alkali and Low-Z Fluids. Zeitschrift Fur Physikalische Chemie, 2003, 217, 795-802.	2.8	5
81	Shock compaction of Feâ€Ndâ€B. Journal of Applied Physics, 1993, 73, 6494-6496.	2.5	4
82	High dynamic pressures and modest temperatures: a broad perspective and bridging the gap. Journal of Physics Condensed Matter, 2002, 14, 11045-11054.	1.8	4
83	Chauet al.Reply:. Physical Review Letters, 2004, 92, .	7.8	4
84	Systematics of the metallization of low-Z and alkali fluids. High Pressure Research, 2004, 24, 87-91.	1.2	4
85	Metastable ultracondensed hydrogenous materials. Journal of Physics Condensed Matter, 2017, 29, 504001.	1.8	4
86	Dynamic Compression of Rare Gases and Deuterium at High Pressures. Contributions To Plasma Physics, 2005, 45, 243-253.	1.1	3
87	Dynamic compression: what it is, making metallic H and magnetic fields of Uranus and Neptune. High Pressure Research, 2017, 37, 119-136.	1.2	3
88	Magnetic fields of Uranus and Neptune: Metallic fluid hydrogen. AIP Conference Proceedings, 2017, , .	0.4	3
89	Shock Temperature Measurements in Ammonia. , 1986, , 467-472.		3
90	Hydrogen at high pressures and temperatures: Implications for Jupiter. Geophysical Monograph Series, 1998, , 357-364.	0.1	2

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91	P. W. Bridgman's contributions to the foundations of shock compression of condensed matter. Journal of Physics: Conference Series, 2010, 215, 012144.	0.4	2
92	Metallic liquid hydrogen and likely Al2O3 metallic glass. European Physical Journal: Special Topics, 2011, 196, 121-130.	2.6	2
93	Magnetic fields of Uranus and Neptune: Metallic fluid hydrogen. Journal of Physics: Conference Series, 2017, 950, 042046.	0.4	2
94	Dense quantum hydrogen. Low Temperature Physics, 2019, 45, 294-296.	0.6	2
95	Properties of Niobium Recovered from Megabar Dynamic Pressures. , 1986, , 719-724.		2
96	Disks of YBa2Cu3O7 shocked to 10 GPa pressures. AIP Conference Proceedings, 1994, , .	0.4	1
97	Semiconductorâ€“metal transitions in low-Z and alkali fluids. Physica Status Solidi (B): Basic Research, 2004, 241, 3215-3218.	1.5	1
98	Properties of Planetary Fluids at High Shock Pressures and Temperatures. Geophysical Monograph Series, 0, , 387-391.	0.1	1
99	Raman Spectroscopy of Shocked Water. , 1986, , 191-200.		1
100	Equation of State of Helium and Polybutene and Raman Spectrum of Water at High Shock Pressures and Temperatures. Materials Research Society Symposia Proceedings, 1983, 22, 55.	0.1	0
101	C60 Transformations at High Pressures. Materials Research Society Symposia Proceedings, 1992, 270, 155.	0.1	0
102	Molecular and planetary fluids at high shock pressures. , 1998, , .		0
103	Metallization of fluid hydrogen at 140 GPa (1.4Mbar) by shock compression. High Pressure Research, 2000, 16, 291-303.	1.2	0
104	Metallization of Fluid Hydrogen at 140 GPA (1.4 Mbar). , 2002, , 25-32.		0
105	SYSTEMATICS OF COMPRESSION OF HARD MATERIALS. , 2008, , .		0
106	TOWN HALL MEETING: FUTURE DIRECTIONS IN DYNAMIC HIGH PRESSURE RESEARCH. , 2008, , .		0
107	Unusual Magnetic Fields of Uranus and Neptune: Metallic Fluid Hydrogen. Journal of Physics: Conference Series, 2017, 950, 032020.	0.4	0
108	A Perspective on Hydrogen Near the Liquidâ€“Liquid Phase Transition and Metallization of Fluid H. Journal of Physical Chemistry Letters, 2021, 12, 7972-7981.	4.6	0

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109	Electrical Conductivity Measurements in Shock Compressed Liquid Nitrogen. , 1986, , 473-476.		0
110	Planetary fluids at high shock pressures and temperatures. , 1992, , 399-402.		0