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	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
2	Dense quantum hydrogen. Low Temperature Physics, 2019, 45, 294-296.	0.6	2
3	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
4	Metastable ultracondensed hydrogenous materials. Journal of Physics Condensed Matter, 2017, 29, 504001.	1.8	4
5	Magnetic fields of Uranus and Neptune: Metallic fluid hydrogen. AIP Conference Proceedings, 2017, , .	0.4	3
6	Unusual Magnetic Fields of Uranus and Neptune: Metallic Fluid Hydrogen. Journal of Physics: Conference Series, 2017, 950, 032020.	0.4	0
7	Magnetic fields of Uranus and Neptune: Metallic fluid hydrogen. Journal of Physics: Conference Series, 2017, 950, 042046.	0.4	2
8	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
9	The electrical conductivity of Al2O3 under shock-compression. Scientific Reports, 2015, 5, 12823.	3.3	8
10	The unusual magnetic fields of Uranus and Neptune. Modern Physics Letters B, 2015, 29, 1430018.	1.9	43
11	Wigner and Huntington: the long quest for metallic hydrogen. High Pressure Research, 2013, 33, 369-376.	1.2	19
12	Metallic liquid hydrogen and likely Al2O3 metallic glass. European Physical Journal: Special Topics, 2011, 196, 121-130.	2.6	2
13	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
14	Entropy-dominated dissipation in sapphire shock-compressed up to 400 GPa (4 Mbar). Journal of Physics: Conference Series, 2010, 215, 012148.	0.4	11
15	<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:msu a metallic glass at 300 GPa. Physical Review B, 2010, 82, .	3.2	8
16	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
17	Systematics of compression of hard materials. Journal of Physics: Conference Series, 2008, 121, 062005.	0.4	5
18	SYSTEMATICS OF COMPRESSION OF HARD MATERIALS. , 2008, , .		0

#	Article	IF	Citations
19	TOWN HALL MEETING: FUTURE DIRECTIONS IN DYNAMIC HIGH PRESSURE RESEARCH. , 2008, , .		0
20	Calibration of the ruby pressure scale to 150 GPa. Physica Status Solidi (B): Basic Research, 2007, 244, 460-467.	1.5	30
21	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
22	Dynamic compression of materials: metallization of fluid hydrogen at high pressures. Reports on Progress in Physics, 2006, 69, 1479-1580.	20.1	192
23	Dynamic Compression of Rare Gases and Deuterium at High Pressures. Contributions To Plasma Physics, 2005, 45, 243-253.	1.1	3
24	Deuterium Hugoniot up to 120 Gpa (1.2 Mbar). Astrophysics and Space Science, 2005, 298, 141-145.	1.4	5
25	Shock compression of liquid deuterium up to109GPa. Physical Review B, 2005, 71, .	3.2	137
26	The ruby pressure standard to 150GPa. Journal of Applied Physics, 2005, 98, 114905.	2.5	231
27	High-pressure equations of state of Al, Cu, Ta, and W. Journal of Applied Physics, 2005, 98, 073526.	2.5	84
28	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
29	Chauet al.Reply:. Physical Review Letters, 2004, 92, .	7.8	4
30	Systematics of the metallization of low-Z and alkali fluids. High Pressure Research, 2004, 24, 87-91.	1.2	4
31	Semiconductorâ€“metal transitions in low-Z and alkali fluids. Physica Status Solidi (B): Basic Research, 2004, 241, 3215-3218.	1.5	1
32	Metallization of Fluid Nitrogen and the Mott Transition in Highly Compressed Low-ZFluids. Physical Review Letters, 2003, 90, 245501.	7.8	80
33	Shock compression of a free-electron gas. Journal of Applied Physics, 2003, 94, 272-275.	2.5	16
34	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
35	The Transition to the Metallic State in Alkali and Low-Z Fluids. Zeitschrift Fur Physikalische Chemie, 2003, 217, 795-802.	2.8	5
36	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

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37	Shock Compression of Deuterium near 100 GPa Pressures. Physical Review Letters, 2002, 89, 165502.	7.8	54
38	Metallization of Fluid Hydrogen at 140 GPA (1.4 Mbar). , 2002, , 25-32.		0
39	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
40	Carbon at pressures in the range 0.1â€“1 TPa (10 Mbar). Journal of Applied Physics, 2001, 90, 696-698.	2.5	38
41	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
42	High Pressure Insulator-Metal Transition in Molecular Fluid Oxygen. Physical Review Letters, 2001, 86, 3108-3111.	7.8	92
43	Metallization of fluid hydrogen at 140 GPa (1.4Mbar) by shock compression. High Pressure Research, 2000, 16, 291-303.	1.2	0
44	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
45	Minimum metallic conductivity of fluid hydrogen at 140 GPa (1.4 Mbar). Physical Review B, 1999, 59, 3434-3449.	3.2	234
46	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
47	Metallization of fluid hydrogen. Philosophical Transactions Series A, Mathematical, Physical, and Engineering Sciences, 1998, 356, 119-138.	3.4	44
48	Molecular and planetary fluids at high shock pressures. , 1998, , .		0
49	Sound velocities in shocked liquid deuterium. , 1998, , .		5
50	Hydrogen at high pressures and temperatures: Implications for Jupiter. Geophysical Monograph Series, 1998, , 357-364.	0.1	2
51	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
52	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
53	Metallic Hydrogen at High Pressures and Temperatures in Jupiter. Chemistry - A European Journal, 1997, 3, 1921-1924.	3.3	7
54	Metallization and Electrical Conductivity of Hydrogen in Jupiter. Science, 1996, 273, 936-938.	12.6	99

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55	Metallization of Fluid Molecular Hydrogen at 140 GPa (1.4 Mbar). Physical Review Letters, 1996, 76, 1860-1863.	7.8	719
56	Shock compaction of SmCo5particles. Journal of Applied Physics, 1996, 79, 9236-9244.	2.5	16
57	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
58	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
59	Temperature measurements and dissociation of shock-compressed liquid deuterium and hydrogen. Physical Review B, 1995, 52, 15835-15845.	3.2	222
60	Temperature measurements of shock-compressed liquid hydrogen: implications for the interior of Jupiter. Science, 1995, 269, 1249-1252.	12.6	87
61	Disks of YBa2Cu3O7 shocked to 10 GPa pressures. AIP Conference Proceedings, 1994, , .	0.4	1
62	Dynamic compaction of copper powder: Computation and experiment. Applied Physics Letters, 1994, 65, 418-420.	3.3	50
63	Dynamic Compaction of Al2O3-ZrO2 Compositions. Journal of the American Ceramic Society, 1994, 77, 1605-1612.	3.8	9
64	Shock wave profile study of tuff from the Nevada Test Site. Journal of Geophysical Research, 1994, 99, 15529.	3.3	9
65	Shock Amorphization of Cristobalite. Science, 1993, 259, 663-666.	12.6	49
66	Shock compaction of Feâ€Ndâ€B. Journal of Applied Physics, 1993, 73, 6494-6496.	2.5	4
67	Electronic energy gap of molecular hydrogen from electrical conductivity measurements at high shock pressures. Physical Review Letters, 1992, 68, 2937-2940.	7.8	113
68	Diamondlike metastable carbon phases from shockâ€compressed C60films. Applied Physics Letters, 1992, 61, 273-275.	3.3	71
69	C60 Transformations at High Pressures. Materials Research Society Symposia Proceedings, 1992, 270, 155.	0.1	0
70	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
71	Shock metamorphism of quartz with initial temperatures ?170 to + 1000ï¿½ C. Physics and Chemistry of Minerals, 1992, 19, 267.	0.8	91
72	Planetary fluids at high shock pressures and temperatures. , 1992, , 399-402.		0

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73	Equation of state of shockâ€compressed liquids: Carbon dioxide and air. Journal of Chemical Physics, 1991, 95, 5268-5272.	3.0	63
74	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
75	Interior Structure of Neptune: Comparison with Uranus. Science, 1991, 253, 648-651.	12.6	157
76	Phase Transformations in Carbon Fullerenes at High Shock Pressures. Science, 1991, 254, 1489-1491.	12.6	95
77	Shock-induced martensitic phase transformation of oriented graphite to diamond. Nature, 1991, 349, 317-319.	27.8	169
78	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
79	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
80	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
81	Metastable A15 phase Nb3Si synthesized by high dynamic pressure. High Pressure Research, 1989, 1, 267-289.	1.2	13
82	The equation of state of platinum to 660 GPa (6.6 Mbar). Journal of Applied Physics, 1989, 66, 2962-2967.	2.5	498
83	Metals physics at ultrahigh pressure: Aluminum, copper, and lead as prototypes. Physical Review Letters, 1988, 60, 1414-1417.	7.8	220
84	Electrical conductivity and equation of state of shockâ€compressed liquid oxygen. Journal of Chemical Physics, 1988, 88, 5042-5050.	3.0	36
85	Equation of state of 1â€butene shocked to 54 GPa (540 kbar). Journal of Chemical Physics, 1988, 88, 7706-7708.	3.0	8
86	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
87	Synthesis Of Metastable Superconductors By High Dynamic Pressure. Proceedings of SPIE, 1988, , .	0.8	6
88	Superconductivity of Nb films recovered from megabar dynamic pressures. Applied Physics Letters, 1986, 49, 413-415.	3.3	9
89	Molecular Dissociation and Shock-Induced Cooling in Fluid Nitrogen at High Densities and Temperatures. Physical Review Letters, 1986, 57, 2419-2422.	7.8	111
90	Properties of Niobium Recovered from Megabar Dynamic Pressures. , 1986, , 719-724.		2

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91	Raman Spectroscopy of Shocked Water. , 1986, , 191-200.		1
92	Shock Temperature Measurements in Ammonia. , 1986, , 467-472.		3
93	Electrical Conductivity Measurements in Shock Compressed Liquid Nitrogen. , 1986, , 473-476.		0
94	Shock temperatures and melting in CsI. Physical Review B, 1985, 31, 1457-1462.	3.2	35
95	Spontaneous Raman Scattering from Shocked Water. Physical Review Letters, 1985, 55, 2433-2436.	7.8	95
96	Phase Transition in Fluid Nitrogen at High Densities and Temperatures. Physical Review Letters, 1984, 53, 1661-1664.	7.8	117
97	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
98	Shock Compression of Liquid Helium to 56 GPa (560 kbar). Physical Review Letters, 1984, 53, 1248-1251.	7.8	121
99	Silica at ultrahigh temperature and expanded volume. Applied Physics Letters, 1984, 45, 626-628.	3.3	37
100	Equationâ€ofâ€state data for molecular hydrogen and deuterium at shock pressures in the range 2â€"76 GPa	3.0	232
101	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
102	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
103	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
104	Shock Compression of Liquid Xenon to 130 GPa (1.3 Mbar). Physical Review Letters, 1982, 48, 816-818.	7.8	43
105	The temperature of shockâ€compressed water. Journal of Chemical Physics, 1982, 76, 6282-6286.	3.0	179
106	Shock compression of liquid carbon monoxide and methane to 90 GPa (900 kbar). Journal of Chemical Physics, 1981, 75, 3055-3063.	3.0	134
107	Shock compression of aluminum, copper, and tantalum. Journal of Applied Physics, 1981, 52, 3363-3374.	2.5	527
108	Diagnostic system of the Lawrence Livermore National Laboratory twoâ€stage lightâ€gas gun. Review of Scientific Instruments, 1981, 52, 347-359.	1.3	120

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109	Shock compression of liquid argon, nitrogen, and oxygen to 90 GPa (900 kbar). Journal of Chemical Physics, 1980, 73, 6137-6145.	3.0	182
110	Properties of Planetary Fluids at High Shock Pressures and Temperatures. Geophysical Monograph Series, 0, , 387-391.	0.1	1