Ronald Redmer

List of Publications by Year
in descending order

112 papers	6,886 citations	71102 41 h-index	60623 81 g-index
114 all docs	114 docs citations	114 times ranked	4207 citing authors

#	Article	IF	Citations
1	The PLATO 2.0 mission. Experimental Astronomy, 2014, 38, 249-330.	3.7	912
2	X-ray Thomson scattering in high energy density plasmas. Reviews of Modern Physics, 2009, 81, 1625-1663.	45.6	612
3	Direct observation of an abrupt insulator-to-metal transition in dense liquid deuterium. Science, 2015, 348, 1455-1460.	12.6	241
4	Ab Initio Equation of State Data for Hydrogen, Helium, and Water and the Internal Structure of Jupiter. Astrophysical Journal, 2008, 683, 1217-1228.	4.5	222
5	Equation of state and phase diagram of water at ultrahigh pressures as in planetary interiors. Physical Review B, 2009, 79, .	3.2	212
6	Thermophysical properties of warm dense hydrogen using quantum molecular dynamics simulations. Physical Review B, 2008, 77, .	3.2	204
7	The phase diagram of water and the magnetic fields of Uranus and Neptune. Icarus, 2011, 211, 798-803.	2.5	195
8	AB INITIO SIMULATIONS FOR MATERIAL PROPERTIES ALONG THE JUPITER ADIABAT. Astrophysical Journal, Supplement Series, 2012, 202, 5.	7.7	170
9	Physical properties of dense, low-temperature plasmas. Physics Reports, 1997, 282, 35-157.	25.6	166
10	JUPITER MODELS WITH IMPROVED AB INITIO HYDROGEN EQUATION OF STATE (H-REOS.2). Astrophysical Journal, 2012, 750, 52.	4.5	165
11	New indication for a dichotomy in the interior structure of Uranus and Neptune from the application of modified shape and rotation data. Planetary and Space Science, 2013, 77, 143-151.	1.7	157
12	THERMAL EVOLUTION AND STRUCTURE MODELS OF THE TRANSITING SUPER-EARTH GJ 1214b. Astrophysical Journal, 2011, 733, 2.	4.5	156
13	Electronic transport coefficients fromab initiosimulations and application to dense liquid hydrogen. Physical Review B, 2011, 83, .	3.2	148
14	X-Ray Thomson-Scattering Measurements of Density and Temperature in Shock-Compressed Beryllium. Physical Review Letters, 2009, 102, 115001.	7.8	147
15	Heterogeneous to homogeneous melting transition visualized with ultrafast electron diffraction. Science, 2018, 360, 1451-1455.	12.6	133
16	Probing the Interiors of the Ice Giants: Shock Compression of Water to 700 GPa and<mml:math xmlns:mml="http://www.w3.org/1998/Math/MathML" display="inline"><mml:mn>3.8</mml:mn><mml:mtext>â€‰</mml:mtext><mml:mtext>â€‰</mml:mtext><mml:mi mathvariant="bold">g</mml:mi><mml:mo>/</mml:mo><mml:msup><mml:mi>cm</mml:mi><mml:mn>3</mml:mn></mml:msup></mm Physical Review Letters, 2012, 108, 091102.	7.8	130
17	Electrical conductivity of dense metal plasmas. Physical Review E, 1999, 59, 1073-1081.	2.1	128
18	Demixing of Hydrogen and Helium at Megabar Pressures. Physical Review Letters, 2009, 102, 115701.	7.8	121

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19	First-order liquid-liquid phase transition in dense hydrogen. Physical Review B, 2010, 82, .	3.2	121
20	AB INITIO EQUATIONS OF STATE FOR HYDROGEN (H-REOS.3) AND HELIUM (He-REOS.3) AND THEIR IMPLICATIONS FOR THE INTERIOR OF BROWN DWARFS. Astrophysical Journal, Supplement Series, 2014, 215, 21.	7.7	121
21	Transport coefficients for dense metal plasmas. Physical Review E, 2000, 62, 7191-7200.	2.1	96
22	Resolving Ultrafast Heating of Dense Cryogenic Hydrogen. Physical Review Letters, 2014, 112, 105002.	7.8	95
23	Uranus evolution models with simple thermal boundary layers. Icarus, 2016, 275, 107-116.	2.5	84
24	Metallization in hydrogen-helium mixtures. Physical Review B, 2011, 84, .	3.2	78
25	COMPTRA04 - a Program Package to Calculate Composition and Transport Coefficients in Dense Plasmas. Contributions To Plasma Physics, 2005, 45, 73-88.	1.1	76
26	Diffusion and electrical conductivity in water at ultrahigh pressures. Physical Review B, 2010, 82, .	3.2	73
27	Conductivity of warm dense matter including electron-electron collisions. Physical Review E, 2015, 91, 043105.	2.1	70
28	AbÂInitio Calculation of the Miscibility Diagram for Hydrogen-Helium Mixtures. Physical Review Letters, 2018, 120, 115703.	7.8	70
29	Warm Dense Matter Demonstrating Non-Drude Conductivity from Observations of Nonlinear Plasmon Damping. Physical Review Letters, 2017, 118, 225001.	7.8	68
30	Quantum Molecular Dynamics Simulations for the Nonmetal-to-Metal Transition in Fluid Helium. Physical Review Letters, 2007, 98, 190602.	7.8	63
31	Ab InitioSimulations for the Ion-Ion Structure Factor of Warm Dense Aluminum. Physical Review Letters, 2014, 112, 145007.	7.8	63
32	Thomson scattering from near-solid density plasmas using soft X-ray free electron lasers. High Energy Density Physics, 2007, 3, 120-130.	1.5	61
33	Ultrahigh compression of water using intense heavy ion beams: laboratory planetary physics. New Journal of Physics, 2010, 12, 073022.	2.9	57
34	Planetary Ices and the Linear Mixing Approximation. Astrophysical Journal, 2017, 848, 67.	4.5	54
35	A Review of Equation-of-State Models for Inertial Confinement Fusion Materials. High Energy Density Physics, 2018, 28, 7-24.	1.5	54
36	Electrical conductivity of nondegenerate, fully ionized plasmas. Physical Review A, 1989, 39, 907-910.	2.5	52

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37	Dynamic structure factor in warm dense beryllium. New Journal of Physics, 2012, 14, 055020.	2.9	52
38	Density-functional calculations of transport properties in the nondegenerate limit and the role of electron-electron scattering. Physical Review E, 2017, 95, 033203.	2.1	52
39	Transport Coefficients for Nonideal Hydrogen and Cesium Plasmas. Contributions To Plasma Physics, 1989, 29, 395-412.	1.1	48
40	Ab initiocalculation of thermodynamic potentials and entropies for superionic water. Physical Review E, 2016, 93, 022140.	2.1	47
41	â€˜â€¦ a metal conducts and a non-metal doesn'tâ€™. Philosophical Transactions Series A, Mathematical, Physical, and Engineering Sciences, 2010, 368, 941-965.	3.4	42
42	Electrical Conductivity of Noble Gases at High Pressures. Contributions To Plasma Physics, 2005, 45, 61-69.	1.1	39
43	Equation of state and phase diagram of ammonia at high pressures from ab initio simulations. Journal of Chemical Physics, 2013, 138, 234504.	3.0	39
44	Interior structure models of GJ436b. Astronomy and Astrophysics, 2010, 523, A26.	5.1	38
45	Superionic Phases of the 1:1 Waterâ€“Ammonia Mixture. Journal of Physical Chemistry A, 2015, 119, 10582-10588.	2.5	36
46	Electrical conductivity of noble gases at high pressures. Physical Review E, 2007, 76, 036405.	2.1	35
47	Carbon ionization at gigabar pressures: An ab initio perspective on astrophysical high-density plasmas. Physical Review Research, 2020, 2, .	3.6	34
48	Interpolation formula for the electrical conductivity of nonideal plasmas. Contributions To Plasma Physics, 2003, 43, 33-38.	1.1	32
49	Ionization potential depression and Pauli blocking in degenerate plasmas at extreme densities. Physical Review E, 2019, 99, 033201.	2.1	31
50	Ab initiocalculation of the ion feature in x-ray Thomson scattering. Physical Review E, 2015, 92, 013103.	2.1	30
51	Observations of non-linear plasmon damping in dense plasmas. Physics of Plasmas, 2018, 25, .	1.9	29
52	Understanding dense hydrogen at planetary conditions. Nature Reviews Physics, 2020, 2, 562-574.	26.6	29
53	Hypernetted Chain Calculations for Multiâ€Component and NonEquilibrium Plasmas. Contributions To Plasma Physics, 2013, 53, 276-284.	1.1	28
54	Hypernetted Chain Calculations for Two-Component Plasmas. Contributions To Plasma Physics, 2007, 47, 324-330.	1.1	27

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55	Thermal evolution of Uranus and Neptune. Astronomy and Astrophysics, 2019, 632, A70.	5.1	27
56	H/He demixing and the cooling behavior of Saturn. Icarus, 2016, 267, 323-333.	2.5	26
57	Ab initiosimulations of the dynamic ion structure factor of warm dense lithium. Physical Review B, 2017, 95, .	3.2	25
58	Ionization Equilibrium in Nonideal Alkali and Noble Gas Plasmas. Contributions To Plasma Physics, 1988, 28, 41-55.	1.1	24
59	Electronic transport in partially ionized water plasmas. Physics of Plasmas, 2017, 24, 092306.	1.9	24
60	High-pressure chemistry of hydrocarbons relevant to planetary interiors and inertial confinement fusion. Physics of Plasmas, 2018, 25, .	1.9	24
61	Equilibration dynamics and conductivity of warm dense hydrogen. Physical Review E, 2014, 90, 013104.	2.1	22
62	An approach for the measurement of the bulk temperature of single crystal diamond using an X-ray free electron laser. Scientific Reports, 2020, 10, 14564.	3.3	21
63	Metallization of Shock-Compressed Liquid Ammonia. Physical Review Letters, 2021, 126, 025003.	7.8	21
64	Optical properties of water at high temperature. Physics of Plasmas, 2011, 18, .	1.9	20
65	Ultrafast multi-cycle terahertz measurements of the electrical conductivity in strongly excited solids. Nature Communications, 2021, 12, 1638.	12.8	20
66	Warm dense matter in giant planets and exoplanets. Physics of Particles and Nuclei, 2008, 39, 1122-1127.	0.7	19
67	Laser-driven shock compression of â€œsynthetic planetary mixturesâ€•of water, ethanol, and ammonia. Scientific Reports, 2019, 9, 10155.	3.3	19
68	Equation of state and optical properties of warm dense helium. Physics of Plasmas, 2018, 25, .	1.9	18
69	Material Properties for the Interiors of Massive Giant Planets and Brown Dwarfs. Astronomical Journal, 2018, 156, 149.	4.7	18
70	Average-atom model for two-temperature states and ionic transport properties of aluminum in the warm dense matter regime. High Energy Density Physics, 2017, 22, 21-26.	1.5	17
71	Evaluation of exchange-correlation functionals with multiple-shock conductivity measurements in hydrogen and deuterium at the molecular-to-atomic transition. Physical Review B, 2018, 98, .	3.2	17
72	Paramagnetic-to-Diamagnetic Transition in Dense Liquid Iron and Its Influence on Electronic Transport Properties. Physical Review Letters, 2019, 122, 086601.	7.8	17

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73	High-energy-density-science capabilities at the Facility for Antiproton and Ion Research. Physics of Plasmas, 2020, 27, .	1.9	16
74	High-resolution inelastic x-ray scattering at the high energy density scientific instrument at the European X-Ray Free-Electron Laser. Review of Scientific Instruments, 2021, 92, 013101.	1.3	15
75	Average-atom model combined with the hypernetted chain approximation applied to warm dense matter. Physical Review E, 2015, 91, 033114.	2.1	13
76	Thermal evolution of Uranus and Neptune. Astronomy and Astrophysics, 2021, 650, A200.	5.1	13
77	The Effect of Clouds as an Additional Opacity Source on the Inferred Metallicity of Giant Exoplanets. Atmosphere, 2019, 10, 664.	2.3	11
78	The Influence of Dynamical Screening on the Transport Properties of Dense Plasmas. Contributions To Plasma Physics, 2013, 53, 639-652.	1.1	10
79	Transition to metallization in warm dense helium-hydrogen mixtures using stochastic density functional theory within the Kubo-Greenwood formalism. Physical Review B, 2019, 100, .	3.2	10
80	High-pressure melting line of helium from ab initio calculations. Physical Review B, 2019, 100, .	3.2	10
81	Metallization of dense fluid helium from ab initio simulations. Physical Review B, 2020, 102, .	3.2	10
82	Lowâ€Density Equation of State for Water from a Chemical Model. Contributions To Plasma Physics, 2013, 53, 336-346.	1.1	9
83	Electron-Ion Temperature Relaxation in Warm Dense Hydrogen Observed With Picosecond Resolved X-Ray Scattering. Frontiers in Physics, 2022, 10, .	2.1	9
84	Determination of the electron-lattice coupling strength of copper with ultrafast MeV electron diffraction. Review of Scientific Instruments, 2018, 89, 10C108.	1.3	8
85	Demonstration of a laser-driven, narrow spectral bandwidth x-ray source for collective x-ray scattering experiments. Physics of Plasmas, 2021, 28, .	1.9	8
86	Application of linear response theory to magnetotransport properties of dense plasmas. Physical Review E, 2010, 81, 036409.	2.1	7
87	Transport Coefficients in Dense Plasmas Including Ionâ€Ion Structure Factor. Contributions To Plasma Physics, 2011, 51, 355-360.	1.1	7
88	Ionization and transport in partially ionized multicomponent plasmas: Application to atmospheres of hot Jupiters. Physical Review E, 2021, 103, 063203.	2.1	7
89	Electronic transport coefficients from density functional theory across the plasma plane. Physical Review E, 2022, 105, .	2.1	7
90	Comment on â€œIsochoric, isobaric, and ultrafast conductivities of aluminum, lithium, and carbon in the warm dense matter regimeâ€• Physical Review E, 2019, 99, 047201.	2.1	6

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91	Sodium-potassium system at high pressure. Physical Review B, 2020, 101, .	3.2	6
92	Thermodynamics of the insulator-metal transition in dense liquid deuterium. Physical Review B, 2020, 101, .	3.2	6
93	Observation of a highly conductive warm dense state of water with ultrafast pumpâ€“probe free-electron-laser measurements. Matter and Radiation at Extremes, 2021, 6, .	3.9	6
94	Virial expansion of the electrical conductivity of hydrogen plasmas. Physical Review E, 2021, 104, 045204.	2.1	6
95	Extending ab initio simulations for the ion-ion structure factor of warm dense aluminum to the hydrodynamic limit using neural network potentials. Physical Review B, 2022, 105, .	3.2	6
96	Molecular dynamic simulation of the microscopic properties and electrical conductivity of a dense semiclassical plasma. Journal of Plasma Physics, 2006, 72, 1031.	2.1	5
97	Using time-resolved penumbral imaging to measure low hot spot x-ray emission signals from capsule implosions at the National Ignition Facility. Review of Scientific Instruments, 2018, 89, 10G111.	1.3	5
98	Comment on â€œInsulator-metal transition in dense fluid deuteriumâ€• Science, 2019, 363, .	12.6	5
99	Gibbs-ensemble Monte Carlo simulation of <mml:math xmlns:mml="http://www.w3.org/1998/Math/MathML"><mml:msub><mml:mi mathvariant="normal">H</mml:mi><mml:mn>2</mml:mn></mml:msub><mml:mtext>â^’</mml:mtext><mml:mi mathvariant="normal">He</mml:mi></mml:math> mixtures. Physical Review E, 2021, 103, 013307.	2.1	5
100	X-ray Thomson scattering for measuring dense beryllium plasma collisionality. Journal of Physics: Conference Series, 2010, 244, 032044.	0.4	4
101	Ionization Equilibrium and Composition of a Dense Partially Ionized Metal Plasma. Contributions To Plasma Physics, 2011, 51, 391-394.	1.1	4
102	Simulations of Hâ€“He mixtures using the van der Waals density functional. Journal of Plasma Physics, 2018, 84, .	2.1	4
103	Gibbs-ensemble Monte Carlo simulation of H2â€“H2O mixtures. Physical Chemistry Chemical Physics, 2021, 23, 12637-12643.	2.8	4
104	Ionic self-diffusion coefficient and shear viscosity of high-Z materials in the hot dense regime. Matter and Radiation at Extremes, 2021, 6, 026901.	3.9	4
105	Nonlinear electrical conductivity in hydrogen plasma. Physics of Fluids B, 1993, 5, 55-62.	1.7	3
106	Laboratory planetary physics using intense heavy ion beams atÂtheÂFacility for Antiprotons and Ion Research at Darmstadt: theÂHEDgeHOB collaboration. Astrophysics and Space Science, 2011, 336, 61-65.	1.4	3
107	Ionization dynamics of dense matter generated by intense ultrashort Xâ€ray pulses. Contributions To Plasma Physics, 2019, 59, e201800156.	1.1	3
108	Towards performing high-resolution inelastic X-ray scattering measurements at hard X-ray free-electron lasers coupled with energetic laser drivers. Journal of Synchrotron Radiation, 2022, 29, .	2.4	3

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109	Nonmetalâ€toâ€metal transition in dense fluid helium. Contributions To Plasma Physics, 0, , e202100105.	1.1	2
110	Modeling giant planets and brown dwarfs. Proceedings of the International Astronomical Union, 2010, 6, 473-474.	0.0	1
111	X-ray thomson scattering in dense plasmas. , 0, , .		0
112	Constraining planetary interiors with the Love number k2. Proceedings of the International Astronomical Union, 2010, 6, 482-484.	0.0	0