

Dave Kilcrease

List of Publications by Year in descending order

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83
papers

1,901
citations

331670

21
h-index

276875

41
g-index

85
all docs

85
docs citations

85
times ranked

1408
citing authors

#	ARTICLE	IF	CITATIONS
1	A higher-than-predicted measurement of iron opacity at solar interior temperatures. <i>Nature</i> , 2015, 517, 56-59.	27.8	321
2	A NEW GENERATION OF LOS ALAMOS OPACITY TABLES. <i>Astrophysical Journal</i> , 2016, 817, 116.	4.5	153
3	The Los Alamos suite of relativistic atomic physics codes. <i>Journal of Physics B: Atomic, Molecular and Optical Physics</i> , 2015, 48, 144014.	1.5	122
4	The new Los Alamos opacity code ATOMIC. <i>Journal of Quantitative Spectroscopy and Radiative Transfer</i> , 2006, 99, 265-271.	2.3	94
5	Calculational aspects of the Stark line broadening of multielectron ions in plasmas. <i>Computer Physics Communications</i> , 1991, 63, 314-322.	7.5	91
6	Systematic Study of L -Shell Opacity at Stellar Interior Temperatures. <i>Physical Review Letters</i> , 2019, 122, 235001.	7.8	78
7	Relativistic opacities for astrophysical applications. <i>High Energy Density Physics</i> , 2015, 16, 53-59.	1.5	52
8	Time-resolved spectroscopic measurements of high density in Ar-filled microballoon implosions. <i>Physical Review Letters</i> , 1989, 63, 267-270.	7.8	43
9	Light element opacities from ATOMIC. <i>High Energy Density Physics</i> , 2013, 9, 369-374.	1.5	41
10	Analysis of geological materials containing uranium using laser-induced breakdown spectroscopy. <i>Spectrochimica Acta, Part B: Atomic Spectroscopy</i> , 2016, 120, 1-8.	2.9	40
11	Quantum molecular dynamics simulations of transport properties in liquid and dense-plasma plutonium. <i>Physical Review E</i> , 2011, 83, 026404.	2.1	38
12	Interpretation of the BRITE oscillation data of the hybrid pulsator $\hat{\gamma}_2$ Eridani: a call for the modification of stellar opacities. <i>Monthly Notices of the Royal Astronomical Society</i> , 2017, 466, 2284-2293.	4.4	38
13	Los Alamos Opacities: Transition from LEDCOP to ATOMIC. <i>AIP Conference Proceedings</i> , 2004, , .	0.4	37
14	Model comparisons for high-Z non-LTE steady-state calculations. <i>Journal of Quantitative Spectroscopy and Radiative Transfer</i> , 2001, 71, 107-116.	2.3	32
15	Comparison of Fe and Ni opacity calculations for a better understanding of pulsating stellar envelopes. <i>High Energy Density Physics</i> , 2011, 7, 312-319.	1.5	32
16	Wider pulsation instability regions for $\hat{\gamma}_2$ Cephei and SPB stars calculated using new Los Alamos opacities. <i>Astronomy and Astrophysics</i> , 2015, 580, L9.	5.1	31
17	Effect of higher-order multipole moments on the Stark line shape. <i>Physical Review A</i> , 2016, 94, .	2.5	26
18	High-resolution x-ray spectroscopy of a subpicosecond-laser-produced silicon plasma. <i>Physical Review A</i> , 1995, 51, 3529-3533.	2.5	24

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19	Atomic configuration average simulations for plasma spectroscopy. Journal of Physics B: Atomic, Molecular and Optical Physics, 1993, 26, L717-L723.	1.5	23
20	Radiative properties of stellar envelopes: Comparison of asteroseismic results to opacity calculations and measurements for iron and nickel. High Energy Density Physics, 2013, 9, 473-479.	1.5	22
21	Phase discrimination of uranium oxides using laser-induced breakdown spectroscopy. Spectrochimica Acta, Part B: Atomic Spectroscopy, 2017, 134, 91-97.	2.9	22
22	Optical properties of highly compressed polystyrene: An ab initio study. Physical Review B, 2017, 96, .	3.2	22
23	Ion broadening of dense-plasma spectral lines including field-dependent atomic physics and the ion quadrupole interaction. Physical Review E, 1993, 48, 3901-3913.	2.1	21
24	Plasma non-ideality effects on the photon-electron scattering contribution to radiative opacities. Journal of Quantitative Spectroscopy and Radiative Transfer, 2001, 71, 445-453.	2.3	21
25	Model uncertainties of local-thermodynamic-equilibrium K-shell spectroscopy. High Energy Density Physics, 2016, 20, 17-22.	1.5	21
26	Laser-induced breakdown spectroscopy of light water reactor simulated used nuclear fuel: Main oxide phase. Spectrochimica Acta, Part B: Atomic Spectroscopy, 2017, 133, 26-33.	2.9	21
27	CHEMEOS: A New Chemical-Picture-Based Model for Plasma Equation-of-State Calculations. AIP Conference Proceedings, 2004, , .	0.4	18
28	Orbital-free molecular dynamics simulations of transport properties in dense-plasma uranium. High Energy Density Physics, 2011, 7, 155-160.	1.5	18
29	Comment on "Large Enhancement in High-Energy Photoionization of Fe XVII and Missing Continuum Plasma Opacity". Physical Review Letters, 2016, 117, 249501.	7.8	18
30	Effect of Electron Capture on Spectral Line Broadening in Hot Dense Plasmas. Physical Review Letters, 2020, 124, 055003.	7.8	16
31	Dense plasma microfield nonuniformity. Physical Review E, 1997, 55, 6289-6292.	2.1	15
32	Radiative properties of stellar plasmas and open challenges. Astrophysics and Space Science, 2011, 336, 103-109.	1.4	15
33	Ab-initio modeling of an iron laser-induced plasma: Comparison between theoretical and experimental atomic emission spectra. Spectrochimica Acta, Part B: Atomic Spectroscopy, 2014, 97, 65-73.	2.9	15
34	An equation of state for partially ionized plasmas: The Coulomb contribution to the free energy. High Energy Density Physics, 2015, 16, 36-40.	1.5	15
35	Seismic inversion of the solar entropy. Astronomy and Astrophysics, 2017, 607, A58.	5.1	15
36	Magnetized fuel inertial confinement fusion. Nuclear Fusion, 1988, 28, 1465-1468.	3.5	14

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37	DETAILED OPACITY COMPARISON FOR AN IMPROVED STELLAR MODELING OF THE ENVELOPES OF MASSIVE STARS. <i>Astrophysical Journal</i> , 2016, 823, 78.	4.5	14
38	X-ray spectroscopic diagnostics and modeling of polar-drive implosion experiments on the National Ignition Facility. <i>Physics of Plasmas</i> , 2014, 21, .	1.9	13
39	Ab initio calculation of the non-relativistic free-free Gaunt factor incorporating plasma screening. <i>High Energy Density Physics</i> , 2014, 10, 61-69.	1.5	13
40	State-resolved Photodissociation and Radiative Association Data for the Molecular Hydrogen Ion. <i>Astrophysical Journal</i> , 2017, 851, 64.	4.5	13
41	All-Order Full-Coulomb Quantum Spectral Line-Shape Calculations. <i>Physical Review Letters</i> , 2021, 127, 235001.	7.8	13
42	Theoretical and experimental activities on opacities for a good interpretation of seismic stellar probes. <i>Journal of Physics: Conference Series</i> , 2011, 271, 012035.	0.4	11
43	Laser-induced breakdown spectroscopy using mid-infrared femtosecond pulses. <i>Journal of Applied Physics</i> , 2015, 118, 043107.	2.5	11
44	Plasma electric microfields for differing electron and ion temperatures. <i>Journal of Quantitative Spectroscopy and Radiative Transfer</i> , 1994, 51, 161-167.	2.3	10
45	Creation, destruction, and transfer of atomic multipole moments by electron scattering: Quantum-mechanical treatment. <i>Physical Review A</i> , 2008, 78, .	2.5	10
46	The reduced detailed configuration accounting (RDCA) model for NLTE plasma spectral calculations. <i>High Energy Density Physics</i> , 2009, 5, 204-207.	1.5	10
47	The creation, destruction and transfer of multipole moments in electron scattering by ions. <i>Journal of Physics B: Atomic, Molecular and Optical Physics</i> , 2012, 45, 105202.	1.5	10
48	Inversions of the Ledoux discriminant: a closer look at the tachocline. <i>Monthly Notices of the Royal Astronomical Society: Letters</i> , 2017, 472, L70-L74.	3.3	10
49	Spectral line strength binning method for opacity calculations. <i>High Energy Density Physics</i> , 2007, 3, 309-313.	1.5	9
50	Laser-driven production of the antihydrogen molecular ion. <i>Physical Review A</i> , 2019, 100, .	2.5	9
51	Various applications of atomic physics and kinetics codes to plasma modeling. <i>AIP Conference Proceedings</i> , 1996, , .	0.4	8
52	Non-LTE and gradient effects in K-shell oxygen emission laser-produced plasma. <i>High Energy Density Physics</i> , 2010, 6, 295-300.	1.5	8
53	The derivation of kinetic equations for anisotropic plasmas from the impact approximation. <i>Journal of Physics B: Atomic, Molecular and Optical Physics</i> , 2011, 44, 215701.	1.5	8
54	Theoretical modeling and analysis of the emission spectra of a ChemCam standard: Basalt BIR-1A. <i>Spectrochimica Acta, Part B: Atomic Spectroscopy</i> , 2015, 110, 20-30.	2.9	8

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55	Experimental and theoretical studies of laser-induced breakdown spectroscopy emission from iron oxide: Studies of atmospheric effects. Spectrochimica Acta, Part B: Atomic Spectroscopy, 2016, 122, 85-92.	2.9	8
56	Density-matrix correlations in the relaxation theory of electron broadening. Physical Review A, 2018, 98, .	2.5	8
57	Introduction to spectral line shape theory. Journal of Physics B: Atomic, Molecular and Optical Physics, 2022, 55, 034002.	1.5	8
58	Analysis Of K- And L-Shell Spectra Emitted From Implosions Of Argon Filled And Argon/Krypton Filled Microballoons. Proceedings of SPIE, 1988, , .	0.8	7
59	Improved electron collisional line broadening for low-temperature ions and neutrals in plasma modeling. Journal of Physics B: Atomic, Molecular and Optical Physics, 2014, 48, 224009.	1.5	7
60	Theoretical and experimental investigation of matrix effects observed in emission spectra of binary mixtures of sodium and copper and magnesium and copper pressed powders. Spectrochimica Acta, Part B: Atomic Spectroscopy, 2016, 122, 142-148.	2.9	7
61	Interaction of configuration in spectral opacity calculations for stellar physics. EAS Publications Series, 2012, 58, 51-55.	0.3	4
62	New Los Alamos Opacity Calculations. Atoms, 2018, 6, 32.	1.6	4
63	Matrix Methods for Solving Hartree-Fock Equations in Atomic Structure Calculations and Line Broadening. Atoms, 2018, 6, 22.	1.6	4
64	Photoabsorption in hot, dense plasmas—the average atom, the spherical cell model and the random phase approximation II. Journal of Quantitative Spectroscopy and Radiative Transfer, 2001, 71, 273-280.	2.3	3
65	Coupled electron and atomic kinetics through the solution of the Boltzmann equation for generating time-dependent X-ray spectra. Journal of Quantitative Spectroscopy and Radiative Transfer, 2006, 99, 584-594.	2.3	3
66	Early Solar Mass Loss, Opacity Uncertainties, and the Solar Abundance Problem. , 2009, , .		3
67	Creation, destruction, and transfer of atomic multipole moments by electron scattering: relativistic treatment ¹ This article is part of a Special Issue on the 10th International Colloquium on Atomic Spectra and Oscillator Strengths for Astrophysical and Laboratory Plasmas.. Canadian Journal of Physics. 2011. 89. 521-531.	1.1	3
68	Stark broadened profiles with self-consistent radiation transfer and atomic kinetics in plasmas produced by high intensity lasers. Journal of Quantitative Spectroscopy and Radiative Transfer, 1994, 51, 255-261.	2.3	2
69	Statistical mean-field theory of finite quantum systems: canonical ensemble formulation. Journal of Physics A, 2006, 39, L499-L505.	1.6	2
70	Using semiclassical models for electron broadening and line shift calculations of and dipole transitions. Journal of Quantitative Spectroscopy and Radiative Transfer, 2006, 99, 255-264.	2.3	2
71	Creation, destruction, and transfer of atomic multipole moments by electron scattering: Liouville-space formulation. Journal of Physics B: Atomic, Molecular and Optical Physics, 2013, 46, 085202.	1.5	2
72	Iron and Nickel spectral opacity calculations in conditions relevant for pulsating stellar envelopes and experiments. EPJ Web of Conferences, 2013, 59, 14003.	0.3	2

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73	A new generation of Los Alamos opacity tables. AIP Conference Proceedings, 2017, , .	0.4	2
74	X3D Moving Grid Methods for Semiconductor Applications. VLSI Design, 1998, 8, 117-121.	0.5	1
75	The creation, destruction, and transfer of multipole moments in electron- and proton-impact ionization of atoms and ions. Journal of Physics B: Atomic, Molecular and Optical Physics, 2013, 46, 245202.	1.5	1
76	Putting things on the energy shell. American Journal of Physics, 2008, 76, 1070-1071.	0.7	0
77	NLTE Opacities of Mid- and High-Z Cocktails. , 2009, , .		0
78	Creation, destruction, and transfer of atomic multipole moments by electron scattering: Quantum mechanical treatment. Journal of Physics: Conference Series, 2009, 194, 042002.	0.4	0
79	Atomic Data and the Modeling of Supernova Light Curves. Journal of Physics: Conference Series, 2012, 388, 012022.	0.4	0
80	Light element opacities of astrophysical interest from ATOMIC. , 2013, , .		0
81	The creation, destruction and transfer of multipole moments in electron-ion three-body recombination. Journal of Physics B: Atomic, Molecular and Optical Physics, 2015, 48, 035001.	1.5	0
82	The creation, destruction, and transfer of multipole moments in electron-ion three-body recombination using the Gell-Mann-Goldberger-Watson method. Journal of Physics B: Atomic, Molecular and Optical Physics, 2016, 49, 055202.	1.5	0
83	Kinetic equations for cylindrically symmetric plasmas including atomic coherence and Coulomb potential effects. Journal of Physics B: Atomic, Molecular and Optical Physics, 2017, 50, 095701.	1.5	0