

Dave Kilcrease

List of Publications by Year in descending order

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83
papers

1,901
citations

331259

21
h-index

276539

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.	13.7	321
2	A NEW GENERATION OF LOS ALAMOS OPACITY TABLES. <i>Astrophysical Journal</i> , 2016, 817, 116.	1.6	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.	0.6	122
4	The new Los Alamos opacity code ATOMIC. <i>Journal of Quantitative Spectroscopy and Radiative Transfer</i> , 2006, 99, 265-271.	1.1	94
5	Calculational aspects of the Stark line broadening of multielectron ions in plasmas. <i>Computer Physics Communications</i> , 1991, 63, 314-322.	3.0	91
6	Systematic Study of L -Shell Opacity at Stellar Interior Temperatures. <i>Physical Review Letters</i> , 2019, 122, 235001.	2.9	78
7	Relativistic opacities for astrophysical applications. <i>High Energy Density Physics</i> , 2015, 16, 53-59.	0.4	52
8	Time-resolved spectroscopic measurements of high density in Ar-filled microballoon implosions. <i>Physical Review Letters</i> , 1989, 63, 267-270.	2.9	43
9	Light element opacities from ATOMIC. <i>High Energy Density Physics</i> , 2013, 9, 369-374.	0.4	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.	1.5	40
11	Quantum molecular dynamics simulations of transport properties in liquid and dense-plasma plutonium. <i>Physical Review E</i> , 2011, 83, 026404.	0.8	38
12	Interpretation of the BRITE oscillation data of the hybrid pulsator $\hat{\nu}_{1/2}$ Eridani: a call for the modification of stellar opacities. <i>Monthly Notices of the Royal Astronomical Society</i> , 2017, 466, 2284-2293.	1.6	38
13	Los Alamos Opacities: Transition from LEDCOP to ATOMIC. <i>AIP Conference Proceedings</i> , 2004, , .	0.3	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.	1.1	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.	0.4	32
16	Wider pulsation instability regions for $\hat{\nu}_{1/2}$ Cephei and SPB stars calculated using new Los Alamos opacities. <i>Astronomy and Astrophysics</i> , 2015, 580, L9.	2.1	31
17	Effect of higher-order multipole moments on the Stark line shape. <i>Physical Review A</i> , 2016, 94, .	1.0	26
18	High-resolution x-ray spectroscopy of a subpicosecond-laser-produced silicon plasma. <i>Physical Review A</i> , 1995, 51, 3529-3533.	1.0	24

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19	Atomic configuration average simulations for plasma spectroscopy. <i>Journal of Physics B: Atomic, Molecular and Optical Physics</i> , 1993, 26, L717-L723.	0.6	23
20	Radiative properties of stellar envelopes: Comparison of asteroseismic results to opacity calculations and measurements for iron and nickel. <i>High Energy Density Physics</i> , 2013, 9, 473-479.	0.4	22
21	Phase discrimination of uranium oxides using laser-induced breakdown spectroscopy. <i>Spectrochimica Acta, Part B: Atomic Spectroscopy</i> , 2017, 134, 91-97.	1.5	22
22	Optical properties of highly compressed polystyrene: An ab initio study. <i>Physical Review B</i> , 2017, 96, .	1.1	22
23	Ion broadening of dense-plasma spectral lines including field-dependent atomic physics and the ion quadrupole interaction. <i>Physical Review E</i> , 1993, 48, 3901-3913.	0.8	21
24	Plasma non-ideality effects on the photon-electron scattering contribution to radiative opacities. <i>Journal of Quantitative Spectroscopy and Radiative Transfer</i> , 2001, 71, 445-453.	1.1	21
25	Model uncertainties of local-thermodynamic-equilibrium K-shell spectroscopy. <i>High Energy Density Physics</i> , 2016, 20, 17-22.	0.4	21
26	Laser-induced breakdown spectroscopy of light water reactor simulated used nuclear fuel: Main oxide phase. <i>Spectrochimica Acta, Part B: Atomic Spectroscopy</i> , 2017, 133, 26-33.	1.5	21
27	CHEMEOS: A New Chemical-Picture-Based Model for Plasma Equation-of-State Calculations. <i>AIP Conference Proceedings</i> , 2004, , .	0.3	18
28	Orbital-free molecular dynamics simulations of transport properties in dense-plasma uranium. <i>High Energy Density Physics</i> , 2011, 7, 155-160.	0.4	18
29	Comment on "Large Enhancement in High-Energy Photoionization of Fe XVII and Missing Continuum Plasma Opacity". <i>Physical Review Letters</i> , 2016, 117, 249501.	2.9	18
30	Effect of Electron Capture on Spectral Line Broadening in Hot Dense Plasmas. <i>Physical Review Letters</i> , 2020, 124, 055003.	2.9	16
31	Dense plasma microfield nonuniformity. <i>Physical Review E</i> , 1997, 55, 6289-6292.	0.8	15
32	Radiative properties of stellar plasmas and open challenges. <i>Astrophysics and Space Science</i> , 2011, 336, 103-109.	0.5	15
33	Ab-initio modeling of an iron laser-induced plasma: Comparison between theoretical and experimental atomic emission spectra. <i>Spectrochimica Acta, Part B: Atomic Spectroscopy</i> , 2014, 97, 65-73.	1.5	15
34	An equation of state for partially ionized plasmas: The Coulomb contribution to the free energy. <i>High Energy Density Physics</i> , 2015, 16, 36-40.	0.4	15
35	Seismic inversion of the solar entropy. <i>Astronomy and Astrophysics</i> , 2017, 607, A58.	2.1	15
36	Magnetized fuel inertial confinement fusion. <i>Nuclear Fusion</i> , 1988, 28, 1465-1468.	1.6	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.	1.6	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, .	0.7	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.	0.4	13
40	State-resolved Photodissociation and Radiative Association Data for the Molecular Hydrogen Ion. <i>Astrophysical Journal</i> , 2017, 851, 64.	1.6	13
41	All-Order Full-Coulomb Quantum Spectral Line-Shape Calculations. <i>Physical Review Letters</i> , 2021, 127, 235001.	2.9	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.	0.3	11
43	Laser-induced breakdown spectroscopy using mid-infrared femtosecond pulses. <i>Journal of Applied Physics</i> , 2015, 118, 043107.	1.1	11
44	Plasma electric microfields for differing electron and ion temperatures. <i>Journal of Quantitative Spectroscopy and Radiative Transfer</i> , 1994, 51, 161-167.	1.1	10
45	Creation, destruction, and transfer of atomic multipole moments by electron scattering: Quantum-mechanical treatment. <i>Physical Review A</i> , 2008, 78, .	1.0	10
46	The reduced detailed configuration accounting (RDCA) model for NLTE plasma spectral calculations. <i>High Energy Density Physics</i> , 2009, 5, 204-207.	0.4	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.	0.6	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.	1.2	10
49	Spectral line strength binning method for opacity calculations. <i>High Energy Density Physics</i> , 2007, 3, 309-313.	0.4	9
50	Laser-driven production of the antihydrogen molecular ion. <i>Physical Review A</i> , 2019, 100, .	1.0	9
51	Various applications of atomic physics and kinetics codes to plasma modeling. <i>AIP Conference Proceedings</i> , 1996, , .	0.3	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.	0.4	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.	0.6	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.	1.5	8

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55	Experimental and theoretical studies of laser-induced breakdown spectroscopy emission from iron oxide: Studies of atmospheric effects. <i>Spectrochimica Acta, Part B: Atomic Spectroscopy</i> , 2016, 122, 85-92.	1.5	8
56	Density-matrix correlations in the relaxation theory of electron broadening. <i>Physical Review A</i> , 2018, 98, .	1.0	8
57	Introduction to spectral line shape theory. <i>Journal of Physics B: Atomic, Molecular and Optical Physics</i> , 2022, 55, 034002.	0.6	8
58	Analysis Of K- And L-Shell Spectra Emitted From Implosions Of Argon Filled And Argon/Krypton Filled Microballoons. <i>Proceedings of SPIE</i> , 1988, , .	0.8	7
59	Improved electron collisional line broadening for low-temperature ions and neutrals in plasma modeling. <i>Journal of Physics B: Atomic, Molecular and Optical Physics</i> , 2014, 48, 224009.	0.6	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. <i>Spectrochimica Acta, Part B: Atomic Spectroscopy</i> , 2016, 122, 142-148.	1.5	7
61	Interaction of configuration in spectral opacity calculations for stellar physics. <i>EAS Publications Series</i> , 2012, 58, 51-55.	0.3	4
62	New Los Alamos Opacity Calculations. <i>Atoms</i> , 2018, 6, 32.	0.7	4
63	Matrix Methods for Solving Hartree-Fock Equations in Atomic Structure Calculations and Line Broadening. <i>Atoms</i> , 2018, 6, 22.	0.7	4
64	Photoabsorption in hot, dense plasmas—the average atom, the spherical cell model and the random phase approximation II. <i>Journal of Quantitative Spectroscopy and Radiative Transfer</i> , 2001, 71, 273-280.	1.1	3
65	Coupled electron and atomic kinetics through the solution of the Boltzmann equation for generating time-dependent X-ray spectra. <i>Journal of Quantitative Spectroscopy and Radiative Transfer</i> , 2006, 99, 584-594.	1.1	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.. <i>Canadian Journal of Physics</i> , 2011, 89, 521-531.	0.4	3
68	Stark broadened profiles with self-consistent radiation transfer and atomic kinetics in plasmas produced by high intensity lasers. <i>Journal of Quantitative Spectroscopy and Radiative Transfer</i> , 1994, 51, 255-261.	1.1	2
69	Statistical mean-field theory of finite quantum systems: canonical ensemble formulation. <i>Journal of Physics A</i> , 2006, 39, L499-L505.	1.6	2
70	Using semiclassical models for electron broadening and line shift calculations of and dipole transitions. <i>Journal of Quantitative Spectroscopy and Radiative Transfer</i> , 2006, 99, 255-264.	1.1	2
71	Creation, destruction, and transfer of atomic multipole moments by electron scattering: Liouville-space formulation. <i>Journal of Physics B: Atomic, Molecular and Optical Physics</i> , 2013, 46, 085202.	0.6	2
72	Iron and Nickel spectral opacity calculations in conditions relevant for pulsating stellar envelopes and experiments. <i>EPJ Web of Conferences</i> , 2013, 59, 14003.	0.1	2

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73	A new generation of Los Alamos opacity tables. AIP Conference Proceedings, 2017, , .	0.3	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.	0.6	1
76	Putting things on the energy shell. American Journal of Physics, 2008, 76, 1070-1071.	0.3	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.	0.3	0
79	Atomic Data and the Modeling of Supernova Light Curves. Journal of Physics: Conference Series, 2012, 388, 012022.	0.3	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.	0.6	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.	0.6	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.	0.6	0