Jean-Christophe Pain

List of Publications by Year
in descending order

96	1,191	430874 18	414414 32
papers	citations	h-index	g-index

101	101	101	814
all docs	docs citations	times ranked	citing authors

#	Article	IF	Citations
1	A higher-than-predicted measurement of iron opacity at solar interior temperatures. Nature, 2015, 517, 56-59.	27.8	321
2	Systematic Study of <mml:math xmlns:mml="http://www.w3.org/1998/Math/MathML" display="inline"><mml:mi>L</mml:mi></mml:math> -Shell Opacity at Stellar Interior Temperatures. Physical Review Letters, 2019, 122, 235001.	7.8	78
3	A consistent approach for mixed detailed and statistical calculation of opacities in hot plasmas. High Energy Density Physics, 2011, 7, 234-239.	1.5	52
4	Accounting for highly excited states in detailed opacity calculations. High Energy Density Physics, 2015, 15, 30-42.	1.5	42
5	Absorption spectroscopy of mid and neighboring Z plasmas: Iron, nickel,copper and germanium. High Energy Density Physics, 2009, 5, 173-181.	1.5	36
6	Benfordâ€™s law and complex atomic spectra. Physical Review E, 2008, 77, 012102.	2.1	31
7	Stable method for the calculation of partition functions in the superconfiguration approach. Physical Review E, 2004, 69, 056117.	2.1	30
8	A self-consistent model for the study of electronic properties of hot dense plasmas in the superconfiguration approximation. Journal of Quantitative Spectroscopy and Radiative Transfer, 2006, 99, 451-468.	2.3	27
9	Self-consistent approach for the thermodynamics of ions in dense plasmas in the superconfiguration approximation. Journal of Quantitative Spectroscopy and Radiative Transfer, 2003, 81, 355-369.	2.3	26
10	Equation-of-state model for shock compression of hot dense matter. Physics Letters, Section A: General, Atomic and Solid State Physics, 2007, 362, 120-124.	2.1	25
11	Opacity of iron, nickel, and copper plasmas in the x-ray wavelength range: Theoretical interpretation of<mml:math xmlns:mml="http://www.w3.org/1998/Math/MathML" display="inline"><mml:mrow><mml:mn>2</mml:mn><mml:mi>p</mml:mi><mml:mo>â^'</mml:mo><mml:mn>3</mml:mn><mml:mi d spectra. Physical Review E, 2011, 84, 036407.	2.1	23
12	Electrical Resistivity in Warm Dense Plasmas Beyond the Averageâ€Atom Model. Contributions To Plasma Physics, 2010, 50, 39-45.	1.1	21
13	Characterization of near-LTE, high-temperature and high-density aluminum plasmas produced by ultra-high intensity lasers. High Energy Density Physics, 2015, 16, 12-17.	1.5	21
14	Model uncertainties of local-thermodynamic-equilibrium K-shell spectroscopy. High Energy Density Physics, 2016, 20, 17-22.	1.5	21
15	Efficient methods for calculating the number of states, levels and lines in atomic configurations. High Energy Density Physics, 2009, 5, 320-327.	1.5	20
16	Shell-structure effects on high-pressure Rankineâ€“Hugoniot shock adiabats. High Energy Density Physics, 2007, 3, 204-210.	1.5	19
17	Further stable methods for the calculation of partition functions in the superconfiguration approach. Physical Review E, 2007, 76, 032103.	2.1	18
18	Comment on â€œLarge Enhancement in High-Energy Photoionization of Fe XVII and Missing Continuum Plasma Opacityâ€• Physical Review Letters, 2016, 117, 249501.	7.8	18

#	Article	IF	Citations
19	Impact of high-order moments on the statistical modeling of transition arrays. Physical Review E, 2008, 77, 026708.	2.1	14
20	Jensen-Feynman approach to the statistics of interacting electrons. Physical Review E, 2009, 80, 026703.	2.1	14
21	Detailed computation of hot-plasma atomic spectra. Laser and Particle Beams, 2015, 33, 201-210.	1.0	14
22	D'yakov-Kontorovitch instability of shock waves in hot plasmas. Physical Review E, 2018, 98, .	2.1	14
23	Consistent approach for electrical resistivity within Ziman's theory from solid state to hot dense plasma: Application to aluminum. Physical Review E, 2020, 102, 053209.	2.1	13
24	Quantumâ€Statistical Equationâ€ofâ€State Models of Dense Plasmas: Highâ€Pressure Hugoniot Shock Adiabats. Contributions To Plasma Physics, 2007, 47, 421-434.	1.1	12
25	Theoretical interpretation of X-rays photo-absorption in medium-Z elements plasmas measured at LULI2000 facility. High Energy Density Physics, 2011, 7, 320-326.	1.5	11
26	Regularities and symmetries in atomic structure and spectra. High Energy Density Physics, 2013, 9, 392-401.	1.5	11
27	Detailed Opacity Calculations for Astrophysical Applications. Atoms, 2017, 5, 22.	1.6	11
28	Characterization of anomalous Zeeman patterns in complex atomic spectra. Physical Review A, 2012, 85, .	2.5	10
29	Generating functions for canonical systems of fermions. Physical Review E, 2011, 83, 067701.	2.1	9
30	Corrections to statistical modeling of spectra for plasmas at moderate or low temperatures. High Energy Density Physics, 2011, 7, 277-284.	1.5	9
31	Opacity calculations. Ge and Si dopants in ICF. High Energy Density Physics, 2015, 16, 23-27.	1.5	9
32	X-ray opacity measurements in mid-Z dense plasmas with a new target design of indirect heating. High Energy Density Physics, 2015, 17, 231-239.	1.5	9
33	A quantitative study of some sources of uncertainty in opacity measurements. High Energy Density Physics, 2020, 34, 100745.	1.5	9
34	Commutation relations of operator monomials. Journal of Physics A: Mathematical and Theoretical, 2013, 46, 035304.	2.1	8
35	Super Transition Arrays: A Tool for Studying Spectral Properties of Hot Plasmas. Plasma, 2021, 4, 42-64.	1.8	8
36	Special six-<mml:math xmlns:mml="http://www.w3.org/1998/Math/MathML" display="inline"><mml:mi>j</mml:mi></mml:math>and nine-<mml:math xmlns:mml="http://www.w3.org/1998/Math/MathML" display="inline"><mml:mi>j</mml:mi></mml:math>symbols for a single-<mml:math xmlns:mml="http://www.w3.org/1998/Math/MathML" display="inline"><mml:mi>j</mml:mi></mml:math>shell. Physical Review C, 2011, 84, .	2.9	7

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37	Statistics of electric-quadrupole lines in atomic spectra. Journal of Physics B: Atomic, Molecular and Optical Physics, 2012, 45, 135006.	1.5	7
38	Open M-shell Fe and Ni LTE opacity calculations with the code HULLAC-v9. High Energy Density Physics, 2015, 16, 1-11.	1.5	7
39	Optimized recursion relation for the computation of partition functions in the superconfiguration approach. High Energy Density Physics, 2020, 37, 100891.	1.5	7
40	Koopmans' theorem in the statistical Hartreeâ€“Fock theory. Journal of Physics B: Atomic, Molecular and Optical Physics, 2011, 44, 145001.	1.5	6
41	A note on the contribution of multi-photon processes to radiative opacity. High Energy Density Physics, 2018, 26, 23-25.	1.5	6
42	Equation of State of Dense Plasma Mixtures: Application to the Sun Center. Contributions To Plasma Physics, 2012, 52, 23-27.	1.1	5
43	The hybrid detailed / statistical opacity code SCO-RCG: New developments and applications. AIP Conference Proceedings, 2017, , .	0.4	5
44	NLTE opacity calculations: C-Si and C-Ge mixtures. High Energy Density Physics, 2017, 24, 64-74.	1.5	5
45	ZEST: A Fast Code for Simulating Zeeman-Stark Line-Shape Functions. Atoms, 2018, 6, 11.	1.6	5
46	Plasma potential and opacity calculations. High Energy Density Physics, 2019, 32, 8-13.	1.5	5
47	On the Li-Rosmej analytical formula for energy level shifts in dense plasmas. High Energy Density Physics, 2019, 31, 99-100.	1.5	5
48	Super-transition-array calculations for synthetic spectra and opacity of high-density, high-temperature germanium plasmas. High Energy Density Physics, 2020, 35, 100742.	1.5	5
49	Analytical and numerical expressions for the number of atomic configurations contained in a supershell. Journal of Physics B: Atomic, Molecular and Optical Physics, 2020, 53, 115002.	1.5	5
50	Opacity calculations in ICF plasmas. High Energy Density Physics, 2013, 9, 553-559.	1.5	4
51	Broadening of the Neutral Helium 492 nm Line in a Corona Discharge: Code Comparisons and Data Fitting. Atoms, 2018, 6, 19.	1.6	4
52	Total number of <mml:math xmlns:mml="http://www.w3.org/1998/Math/MathML"><mml:mi>J</mml:mi></mml:math> levels for identical particles in a single- <mml:math xmlns:mml="http://www.w3.org/1998/Math/MathML"><mml:mi>j</mml:mi></mml:math> shell using coefficients of fractional parentage. Physical Review C, 2019, 99, .	2.9	4
53	Thermal electronic properties of aluminum under pressure: The role of <mml:math xmlns:mml="http://www.w3.org/1998/Math/MathML"><mml:mrow><mml:mi>s</mml:mi><mml:mi>p</mml:mi></mml:mrow></mml:math> to <mml:math xmlns:mml="http://www.w3.org/1998/Math/MathML"><mml:mrow><mml:mn>3</mml:mn><mml:mi>d</mml:mi></mml:mrow></mml:math> electron transfer. Physical Review B, 2019, 100, .	3.2	4
54	Simple electron-impact excitation cross-sections including plasma density effects. High Energy Density Physics, 2021, 38, 100923.	1.5	4

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55	Adaptive Algorithm for the Generation of Superconfigurations in Hot-Plasma Opacity Calculations. Plasma, 2022, 5, 154-175.	1.8	4
56	Issues in the calculations of dc conductivity of warm dense aluminium. Contributions To Plasma Physics, 2022, 62, .	1.1	4
57	Opacity of germanium and silicon in ICF plasmas. Proceedings of SPIE, 2013, , .	0.8	3
58	A project based on multi-configuration Diracâ€“Fock calculations for plasma spectroscopy. High Energy Density Physics, 2017, 24, 1-8.	1.5	3
59	Recursive determination of phase shifts for screened Coulomb potentials. Journal of Physics Communications, 2018, 2, 025015.	1.2	3
60	Number of spin- J states and odd-even staggering for identical particles in a single- j shell. Physical Review C, 2018, 97, .	2.9	3
61	Extreme-UV absorption processes in a laser-produced mid-Z plasma: Measurements and theoretical interpretation. High Energy Density Physics, 2019, 33, 100706.	1.5	3
62	On the statistical properties of a hydrogenic atom broadened by linear Stark effect. Journal of Physics B: Atomic, Molecular and Optical Physics, 2019, 52, 245001.	1.5	3
63	Modeling penetrating collisions in the standard line broadening impact theory for hydrogen. High Energy Density Physics, 2019, 30, 52-59.	1.5	3
64	Simultaneous X-ray and XUV absorption measurements in nickel laser-produced plasma close to LTE. High Energy Density Physics, 2019, 31, 83-91.	1.5	3
65	Free-free matrix-elements for two-photon opacity. High Energy Density Physics, 2020, 34, 100717.	1.5	3
66	Angular momentum distribution in a relativistic configuration: magnetic quantum number analysis. Journal of Physics B: Atomic, Molecular and Optical Physics, 2021, 54, 145002.	1.5	3
67	Ionization by electron impacts and ionization potential depression. Journal of Physics B: Atomic, Molecular and Optical Physics, 2022, 55, 105001.	1.5	3
68	ON THE EXISTENCE OF SHOCK INSTABILITIES AT HUGONIOT PRESSURES BEYOND THE MINIMUM VOLUME. , 2009, , .		2
69	Self-consistent modelling of hot plasmas within non-extensive Tsallisâ€™ thermostatistics. European Physical Journal D, 2011, 65, 441-445.	1.3	2
70	Comment on â€œA note on generalized radial mesh generation for plasma electronic structureâ€• High Energy Density Physics, 2011, 7, 224.	1.5	2
71	Description of anomalous Zeeman patterns in stellar astrophysics. EAS Publications Series, 2012, 58, 69-73.	0.3	2
72	Statistical properties of levels and lines in complex spectra: A tribute to Jacques Bauche and Claire Bauche-Arnoult. AIP Conference Proceedings, 2017, , .	0.4	2

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73	Analysis of the X-ray emission spectra of copper, germanium and rubidium plasmas produced at the Phelix laser facility. AIP Conference Proceedings, 2017, , .	0.4	2
74	H-Î² Line in a Corona Helium Plasma: A Multi-Code Line Shape Comparison. Atoms, 2018, 6, 29.	1.6	2
75	Some properties of Wigner 3j coefficients: non-trivial zeros and connections to hypergeometric functions. European Physical Journal A, 2020, 56, 1.	2.5	2
76	New sum rules for Wigner 3jm symbols: application to expectation values of hydrogenic ions. Journal of Physics B: Atomic, Molecular and Optical Physics, 2021, 54, 065002.	1.5	2
77	Exact expressions for the number of levels in single- <mml:math xmlns:mml="http://www.w3.org/1998/Math/MathML"><mml:mi>j</mml:mi></mml:math> orbits for three, four, and five fermions. Physical Review C, 2021, 104, .	2.9	2
78	Sum rules for Clebschâ€“Gordan coefficients from group theory and Runge-Lenz-Pauli vector. Journal of Physics Communications, 2022, 6, 055007.	1.2	2
79	Stark effect modeling in the detailed opacity code SCO-RCG. Journal of Physics: Conference Series, 2016, 717, 012074.	0.4	1
80	Opacity spectra of silicon and carbon in ICF plasmas. AIP Conference Proceedings, 2017, , .	0.4	1
81	K-shell spectroscopy in hot plasmas: Stark effect, Breit interaction and QED corrections. AIP Conference Proceedings, 2017, , .	0.4	1
82	On the vacuum-polarization Uehling potential for a Fermi charge distribution. European Physical Journal D, 2018, 72, 1.	1.3	1
83	Comment on electron-impact excitation cross section measurements for He-like xenon. Canadian Journal of Physics, 2019, 97, 576-578.	1.1	1
84	Unusual sum rule for Clebschâ€“Gordan coefficients. Letters in Mathematical Physics, 2019, 109, 2485-2490.	1.1	1
85	Electron Broadening Operator Including Penetrating Collisions for Hydrogen. Atoms, 2020, 8, 2.	1.6	1
86	Distribution of the total angular momentum in relativistic configurations. Journal of Physics B: Atomic, Molecular and Optical Physics, 2021, 54, 145006.	1.5	1
87	Expression of Relativistic Expectation Values of Powers of r in Terms of Clebschâ€“Gordan Coefficients. Optics and Spectroscopy (English Translation of Optika I Spektroskopiya), 2020, 128, 1105-1109.	0.6	1
88	Radiative properties in ICF plasmas. Proceedings of SPIE, 2011, , .	0.8	0
89	Theoretical interpretation for 2pâ^'ndabsorption spectra of iron, nickel, and copper in X-ray range measured at the LULI2000 facility. EPJ Web of Conferences, 2013, 59, 14001.	0.3	0
90	Analysis of X-ray and Thomson scattering data from non-LTE Nb and Ta plasmas. High Energy Density Physics, 2015, 16, 41-52.	1.5	0

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91	Configuration interaction effect on open M shell Fe and Ni LTE spectral opacities, Rosseland and Planck means. Journal of Physics: Conference Series, 2016, 717, 012017.	0.4	0
92	Calculation of atomic structures and radiative properties of fusion plasmas. AIP Conference Proceedings, 2017, , .	0.4	0
93	Expression of the Holtsmark function in terms of hypergeometric $$_{2}F_2$$ and Airy Bi functions. European Physical Journal Plus, 2020, 135, 1.	2.6	0
94	A note on recursive calculations of particular 9jcoefficients. Lithuanian Journal of Physics, 2011, 51, 194-198.	0.4	0
95	Lâ€™hÃ©lio-sismologie et lâ€™Ã©nigme de lâ€™opacitÃ© du fer. , 2018, , 10-15.	0.1	0
96	On the Wigner-Kirkwood Expansion of the Free Energy and the Evaluation of the Quantum Correction. Atoms, 2022, 10, 65.	1.6	0