Franck Thibault

List of Publications by Year in descending order

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108 papers	2,013 citations	236925 25 h-index	330143 37 g-index
111 all docs	111 docs citations	111 times ranked	671 citing authors

#	Article	IF	Citations
1	Recent advances in collisional effects on spectra of molecular gases and their practical consequences. Journal of Quantitative Spectroscopy and Radiative Transfer, 2018, 213, 178-227.	2.3	85
2	Pressure induced shifts of CO2 lines: Measurements in the 0003â€“0000 band and theoretical analysis. Journal of Chemical Physics, 1992, 96, 4945-4953.	3.0	75
3	Shifting and broadening in the fundamental band of CO highly diluted in He and Ar: A comparison with theory. Journal of Chemical Physics, 2001, 115, 2198-2206.	3.0	61
4	Measurements and empirical modeling of pure CO_2 absorption in the 23-Î¼m region at room temperature: far wings, allowed and collision-induced bands. Applied Optics, 1996, 35, 4863.	2.1	59
5	Accurate deuterium spectroscopy for fundamental studies. Journal of Quantitative Spectroscopy and Radiative Transfer, 2018, 213, 41-51.	2.3	54
6	Dicke-narrowed spectral line shapes of CO in Ar: Experimental results and a revised interpretation. Journal of Molecular Spectroscopy, 2006, 235, 54-68.	1.2	53
7	Spectroscopic, collisional, and thermodynamic properties of the Heâ€“CO2 complex from an ab initio potential: Theoretical predictions and confrontation with the experimental data. Journal of Chemical Physics, 2001, 115, 3074-3084.	3.0	50
8	Experimental and theoretical CO2â€“Ar pressure-broadening cross sections and their temperature dependence. Physical Chemistry Chemical Physics, 2001, 3, 3924-3933.	2.8	46
9	Infrared collision-induced absorption by O_2 near 6.4 Î¼m for atmospheric applications: measurements and empirical modeling. Applied Optics, 1997, 36, 563.	2.1	45
10	Linewidths of C2H2 perturbed by H2: experiments and calculations from an ab initio potential. Physical Chemistry Chemical Physics, 2008, 10, 5419.	2.8	43
11	Spectral line shape of theP(2)transition in CO-Ar: Uncorrelatedab initiocalculation. Physical Review A, 2002, 66, .	2.5	42
12	Rovibrational line-shape parameters for H2 in He and new H2-He potential energy surface. Journal of Quantitative Spectroscopy and Radiative Transfer, 2017, 202, 308-320.	2.3	42
13	Lineâ€byâ€line measurements of interference parameters for the 0â€“1 and 0â€“2 bands of CO in He, and comparison with coupledâ€states calculations. Journal of Chemical Physics, 1992, 97, 4623-4632.	3.0	41
14	Inelastic collisions in para-H2: Translation-rotation state-to-state rate coefficients and cross sections at low temperature and energy. Journal of Chemical Physics, 2005, 122, 064313.	3.0	41
15	Raman and infrared linewidths of CO in Ar. Journal of Chemical Physics, 2002, 117, 2523-2531.	3.0	38
16	Simple modelling of Q-branch absorptionâ”I. Theoretical model and application to CO2 and N2O. Journal of Quantitative Spectroscopy and Radiative Transfer, 1995, 54, 705-722.	2.3	34
17	Collision Cross Sections, Pressure-Broadening Coefficients and Second Virial Coefficients for the Acetylene-Argon Complex:Â Experiments and Calculations on a New Potential Energy Surface. Journal of Physical Chemistry A, 2005, 109, 8471-8480.	2.5	31
18	Velocity-changing collisions in pure H2 and H2-Ar mixture. Journal of Chemical Physics, 2014, 141, 074301.	3.0	30

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19	Experimental and theoretical CO2â€“He pressure broadening cross sections. Physical Chemistry Chemical Physics, 2000, 2, 5404-5410.	2.8	29
20	Testing the ab initio quantumâ€scattering calculations for the D₂â€“He benchmark system with stimulated Raman spectroscopy. Journal of Raman Spectroscopy, 2018, 49, 1339-1349.	2.5	28
21	Collisional line shifting and broadening in the fundamental P-branch of CO in Ar between 214 and 324K. Journal of Molecular Spectroscopy, 2006, 235, 69-76.	1.2	27
22	Q-branch linewidths of N2 perturbed by H2: Experiments and quantum calculations from an ab initio potential. Journal of Chemical Physics, 2007, 126, 204302.	3.0	27
23	Comparison of quantum, semi-classical and classical methods in the calculation of nitrogen self-broadened linewidths. Journal of Quantitative Spectroscopy and Radiative Transfer, 2012, 113, 1887-1897.	2.3	27
24	Strong competition between velocity-changing and phase- or state-changing collisions in<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:math>spectra perturbed by Ar. Physical Review A, 2015, 91, .	2.5	27
25	Line mixing effects in the 0003â€“0000 band of CO2 in helium. III. Energy corrected sudden simultaneous fit of linewidths and near wing profile. Journal of Chemical Physics, 1994, 101, 6552-6558.	3.0	26
26	Experimental and theoretical study of line mixing in NH3 spectra. I. Scaling analysis of parallel bands perturbed by He. Journal of Chemical Physics, 2002, 116, 7544-7557.	3.0	26
27	Ultrahigh finesse cavity-enhanced spectroscopy for accurate tests of quantum electrodynamics for molecules. Optics Letters, 2020, 45, 1603.	3.3	26
28	Line mixing effects in the 00Â°3â€“00Â°0 band of CO2 in helium. II. Theoretical analysis. Journal of Chemical Physics, 1994, 100, 215-223.	3.0	25
29	Evaluation of different parameterizations of temperature dependences of the line-shape parameters based on ab initio calculations: Case study for the HITRAN database. Journal of Quantitative Spectroscopy and Radiative Transfer, 2020, 240, 106676.	2.3	25
30	A test of H2-He potential energy surfaces. European Physical Journal D, 2016, 70, 1.	1.3	24
31	H2 -He collisions: Ab initio theory meets cavity-enhanced spectra. Physical Review A, 2020, 101, .	2.5	24
32	Experimental and theoretical study of line mixing in NH3 spectra. II. Effect of the perturber in infrared parallel bands. Journal of Chemical Physics, 2004, 120, 217-223.	3.0	23
33	Intermolecular interaction potentials for the Arâ€“C2H2, Krâ€“C2H2, and Xeâ€“C2H2 weakly bound complexes: Information from molecular beam scattering, pressure broadening coefficients, and rovibrational spectroscopy. Journal of Chemical Physics, 2007, 126, 064311.	3.0	23
34	Q-branch shapes of CO2 spectrum in 15 Î¼m region: Experiment. Journal of Quantitative Spectroscopy and Radiative Transfer, 1996, 55, 321-334.	2.3	21
35	Argon broadening of the 13CO R(0) and R(7) transitions in the fundamental band at temperatures between 80 and 297K: comparison between experiment and theory. Journal of Molecular Spectroscopy, 2003, 222, 131-141.	1.2	21
36	Collisional line widths of autoperturbed N2: Measurements and quantum calculations. Journal of Quantitative Spectroscopy and Radiative Transfer, 2011, 112, 2542-2551.	2.3	21

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37	Collision-induced velocity changes from molecular dynamic simulations in H2â€“Ar: A test of the Keilsonâ€“Storer model and of line-broadening/shifting calculations for the Q(1) Raman line. Journal of Quantitative Spectroscopy and Radiative Transfer, 2011, 112, 1035-1042.	2.3	21
38	The first comprehensive dataset of beyond-Voigt line-shape parameters from ab initio quantum scattering calculations for the HITRAN database: He-perturbed H<mml:math xmlns:mml="http://www.w3.org/1998/Math/MathML" altimg="si11.svg"><mml:msub><mml:mrow /><mml:mn>2</mml:mn></mml:msub></mml:math> case study. Journal of Quantitative Spectroscopy and Radiative Transfer, 2021, 260, 107477.	2.3	21
39	Ar-Broadening of isotropic Raman lines in the Î½2 band of acetylene. Journal of Molecular Spectroscopy, 2004, 225, 48-54.	1.2	20
40	Ab initio line-shape calculations for the S and O branches of H2 perturbed by He. Journal of Quantitative Spectroscopy and Radiative Transfer, 2018, 219, 313-322.	2.3	20
41	Line mixing effects in the 15 Î¼m Q-branches of CO2 in helium: Theoretical analysis. Journal of Quantitative Spectroscopy and Radiative Transfer, 1996, 56, 835-853.	2.3	19
42	Close coupling calculations for rotational relaxation of CO in argon: Accuracy of energy corrected sudden scaling procedures and comparison with experimental data. Journal of Chemical Physics, 2003, 119, 10563-10574.	3.0	19
43	Line-mixing effects in the 3v3 band of CO2 perturbed by Ar. Journal of Quantitative Spectroscopy and Radiative Transfer, 1996, 55, 307-320.	2.3	18
44	Energy corrected sudden calculations of linewidths and line shapes based on coupled states cross sections: The test case of CO2â€“argon. Journal of Chemical Physics, 1998, 109, 6338-6345.	3.0	18
45	Inelastic collisions in molecular nitrogen at low temperature (2â©½Tâ©½50K). Journal of Chemical Physics, 2007, 127, 134305.	3.0	18
46	Room temperature self- and H2-broadened line parameters of carbon monoxide in the first overtone band: Theoretical and revised experimental results. Journal of Quantitative Spectroscopy and Radiative Transfer, 2017, 203, 309-324.	2.3	18
47	Line mixing effects in the 00Â°3â€“00Â°0 band of CO2 in helium. I. Experiment. Journal of Chemical Physics, 1994, 100, 210-214.	3.0	17
48	Theoretical He-broadening coefficients of infrared and Raman C2H2 lines and their temperature dependence. Journal of Molecular Spectroscopy, 2005, 234, 286-288.	1.2	17
49	Rotranslational state-to-state rates and spectral representation of inelastic collisions in low-temperature molecular hydrogen. Journal of Chemical Physics, 2006, 125, 124301.	3.0	17
50	Comparison of classical, semiclassical and quantum methods in hydrogen broadening of acetylene lines. Journal of Quantitative Spectroscopy and Radiative Transfer, 2011, 112, 1429-1437.	2.3	17
51	Comparison of quantum, semiclassical and classical methods in hydrogen broadening of nitrogen lines. Journal of Quantitative Spectroscopy and Radiative Transfer, 2011, 112, 1942-1949.	2.3	17
52	Line-Mixing Effects inQBranches of CO2. Journal of Molecular Spectroscopy, 1997, 186, 256-268.	1.2	16
53	Experimental line broadening and line shift coefficients of the acetylene Î½1+Î½3 band pressurized by hydrogen and deuterium and comparison with calculations. Journal of Molecular Spectroscopy, 2009, 256, 17-27.	1.2	16
54	Line-shape parameters for the first rotational lines of HD in He. Molecular Astrophysics, 2020, 19, 100063.	1.6	16

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55	Spectral Lineshape Parameters Revisited for HF in a Bath of Argon. Journal of Molecular Spectroscopy, 1999, 198, 257-262.	1.2	15
56	A Bondâ˜Bond Description of the Intermolecular Interaction Energy: The Case of the Weakly Bound Acetyleneâ˜Hydrogen Complex. Journal of Physical Chemistry A, 2009, 113, 14867-14874.	2.5	15
57	Theoretical and revisited experimentally retrieved He-broadened line parameters of carbon monoxide in the fundamental band. Journal of Quantitative Spectroscopy and Radiative Transfer, 2016, 184, 322-340.	2.3	15
58	Accurate wavenumber measurements for the S₀(0), S₀(1), and S₀(2) pure rotational Raman lines of D₂. Journal of Raman Spectroscopy, 2019, 50, 127-129.	2.5	15
59	Broadening of the R(0) and P(2) lines in the 13CO fundamental by helium atoms from 300K down to 12K: Measurements and comparison with close-coupling calculations. Journal of Molecular Spectroscopy, 2007, 246, 118-125.	1.2	14
60	Line interference effects using a refined Robert-Bonamy formalism: The test case of the isotropic Raman spectra of autoperturbed N2. Journal of Chemical Physics, 2014, 140, 084310.	3.0	14
61	Fully quantum calculations of the line-shape parameters for the Hartmann-Tran profile: A CO-Ar case study. Journal of Quantitative Spectroscopy and Radiative Transfer, 2020, 243, 106803.	2.3	14
62	Absolute Intensities in CO2: 3Î½3 near 1.4 Î¼m. Journal of Molecular Spectroscopy, 1993, 159, 259-264.	1.2	13
63	Double scattering on the nucleus in the perturbative QCD. European Physical Journal C, 1999, 6, 343-348.	3.9	13
64	Fully quantum calculations of O2â€“N2 scattering using a new potential energy surface: Collisional perturbations of the oxygen 118ÂGHz fine structure line. Journal of Chemical Physics, 2021, 155, 124307.	3.0	13
65	Temperature dependence of line mixing effects in the stimulated Raman Q-branch of CO in He: A further test of close coupling calculations. Journal of Chemical Physics, 2001, 115, 7420-7428.	3.0	12
66	Experimental and theoretical determination of rotational-translational state-to-state rate constants for N2:He collisions at low temperature (3<T<20â€‰K). Journal of Chemical Physics, 2003, 118, 4477-4486.	3.0	12
67	Measurement of Line Interference Parameters for the CO-He System. Europhysics Letters, 1990, 12, 319-323.	2.0	11
68	Molecular-beam scattering and pressure broadening cross sections for the acetylene-neon system. European Physical Journal D, 2007, 44, 337-344.	1.3	11
69	Low-temperature inelastic collisions between hydrogen molecules and helium atoms. Journal of Chemical Physics, 2008, 128, 224308.	3.0	11
70	An experimental and theoretical study of nitrogen-broadened acetylene lines. Journal of Quantitative Spectroscopy and Radiative Transfer, 2014, 142, 17-24.	2.3	11
71	Measurements of Argon-Induced Shifts in the 2-0 Band of CO. Journal of Molecular Spectroscopy, 1995, 171, 576-578.	1.2	10
72	Argon-broadened CO2 linewidths at high J values. Chemical Physics Letters, 1998, 284, 230-234.	2.6	10

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73	Vibration-dependent trajectories and their effects on vibrational dephasing. Journal of Molecular Spectroscopy, 2007, 243, 105-112.	1.2	9
74	Subpercent agreement between ab initio and experimental collision-induced line shapes of carbon monoxide perturbed by argon. Physical Review A, 2020, 102, .	2.5	9
75	Accurate calculations of beyond-Voigt line-shape parameters from first principles for the He-perturbed HD rovibrational lines: A comprehensive dataset in the HITRAN DPL format. Journal of Quantitative Spectroscopy and Radiative Transfer, 2021, 276, 107911.	2.3	9
76	The 3v3 band of CO2â€"influence of the pressurized perturber gas. Journal of Quantitative Spectroscopy and Radiative Transfer, 1994, 52, 361-366.	2.3	8
77	Ab initio calculations of collisional lineâ€"shape parameters and generalized spectroscopic cross-sections for rovibrational dipole lines in HD perturbed by He. Journal of Quantitative Spectroscopy and Radiative Transfer, 2020, 254, 107194.	2.3	8
78	Ab initio investigation of the COâ€"N2 quantum scattering: The collisional perturbation of the pure rotational R(0) line in CO. Journal of Chemical Physics, 2021, 154, 054314.	3.0	8
79	CO-Ar collisions: ab initio model matches experimental spectra at a sub percent level over a wide pressure range. Journal of Quantitative Spectroscopy and Radiative Transfer, 2021, 272, 107807.	2.3	8
80	Collisional line-shape effects in accurate He-perturbed H<mml:math xmlns:mml="http://www.w3.org/1998/Math/MathML" altimg="si1.svg"><mml:msub><mml:mrow /><mml:mn>2</mml:mn></mml:msub></mml:math> spectra. Journal of Quantitative Spectroscopy and Radiative Transfer, 2022, 277, 107951.	2.3	8
81	Rotational excitation of CO2 induced by He: New potential energy surface and scattering calculations. Journal of Chemical Physics, 2022, 156, 104303.	3.0	8
82	Collisional excitation of HNC by He found to be stronger than for structural isomer HCN in experiments at the low temperatures of interstellar space. Nature Chemistry, 2022, 14, 811-815.	13.6	8
83	Experimental He-pressure broadening for the R(10) and P(2) lines in the Î½3 band of 13CO2, and experimental pressure shifts for R(10) measured at several temperatures between 300K and 100K. Journal of Molecular Spectroscopy, 2009, 256, 102-108.	1.2	7
84	An ab initio potential energy surface for the C₂H₂â€"N₂ system. Molecular Physics, 2012, 110, 2761-2771.	1.7	6
85	Low pressure line shape study of nitrogen-perturbed acetylene transitions in the Î½₁ + Î½₃ band over a range of temperatures. Canadian Journal of Physics, 2013, 91, 896-905.	1.1	6
86	Line coupling effects in the isotropic Raman spectra of N2: A quantum calculation at room temperature. Journal of Chemical Physics, 2014, 140, 044303.	3.0	6
87	Accurate deuterium spectroscopy and comparison with ab initio calculations. Physical Review A, 2020, 101, .	2.5	6
88	Line mixing effects in isotropic Raman spectra of pure N2: A classical trajectory study. Journal of Chemical Physics, 2014, 141, 184306.	3.0	5
89	Collisional line broadening and mixing in the Raman spectrum of CO perturbed by N2: Experimental measurements and theoretical calculations. Journal of Quantitative Spectroscopy and Radiative Transfer, 2021, 275, 107868.	2.3	5
90	Collision-induced double transition effects in the 3Î½3CO2band wing region. Journal of Chemical Physics, 1997, 106, 2067-2072.	3.0	4

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91	Line mixing and line broadening in CO2 bands perturbed by helium at 193 K. Chemical Physics Letters, 1996, 263, 811-816.	2.6	3
92	Line mixing effects in Q-branches of CO2 in helium near 4.7 Î¼m: a further test of the ECS formalism. Journal of Quantitative Spectroscopy and Radiative Transfer, 1997, 57, 519-524.	2.3	3
93	12C16O: Experimental determination of the linear coefficient of the Herman-Wallis factor. Journal of Molecular Spectroscopy, 1991, 148, 329-337.	1.2	1
94	Ultra accurate measurements andab initiocalculations of collisional effects in pure D2.. Journal of Physics: Conference Series, 2017, 810, 012042.	0.4	1
95	Room temperature line parameters of the self- and air-broadened fundamental vibrational transition of carbon monoxide: experimental results and calculations. Journal of Physics: Conference Series, 2019, 1289, 012014.	0.4	1
96	Line broadening and band profile of CO2 in helium at 193 K. , 1997, , .		0
97	Experimental bandshapes of the Î½ 3 band of CH 3 F in helium: the role of interbranch and intrabranch line mixing. , 2000, 4063, 239.		0
98	Shifts of helium and argon broadened CO lines: Asymmetry in line number m. AIP Conference Proceedings, 2001, , .	0.4	0
99	Dicke-Narrowed Line Shapes in CO-Ar: Measurements, Calculations, and a Revised Interpretation. AIP Conference Proceedings, 2006, , .	0.4	0
100	Linewidths of C[sub 2]H[sub 2] perturbed by H[sub 2]: calculations from an ab initio potential and comparison with experimental results. , 2008, , .		0
101	Collisional line widths of autoperturbed N[sub 2]: measurements and quantum calculations. , 2008, , .		0
102	Potential Energy Surfaces for C[sub 2]H[sub 2]â^'X Systems and Quantum Collisional Line Broadening. , 2010, , .		0
103	Ab initio line-shape parameters for speed-dependent hard-collision profiles: applications to rovibrational lines of H2, D2, HD in He or H2. Journal of Physics: Conference Series, 2019, 1289, 012004.	0.4	0
104	Line-shape parameters for pure rotational Raman lines of D2 in He. Journal of Physics: Conference Series, 2019, 1289, 012026.	0.4	0
105	Ab initio quantum calculations of collisional effects in molecular spectra. Journal of Physics: Conference Series, 2020, 1412, 132040.	0.4	0
106	Comb-calibrated Stimulated-Raman Spectroscopy of H2. , 2021, , .		0
107	Comb-referenced Stimulated Raman Spectrometer: Application to the Collisional Physics of H2. , 2021, , .		0
108	Ab initio investigation of the line-shape parameters for atmosphere-relevant molecular systems. Journal of Physics: Conference Series, 2020, 1412, 132033.	0.4	0