Franck Thibault

List of Publications by Year
in descending order

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108 papers	2,013 citations	236612 25 h-index	329751 37 g-index
111 all docs	111 docs citations	111 times ranked	671 citing authors

#	Article	IF	Citations
1	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.	1.1	8
2	Rotational excitation of CO2 induced by He: New potential energy surface and scattering calculations. Journal of Chemical Physics, 2022, 156, 104303.	1.2	8
3	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.	6.6	8
4	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.	1.1	21
5	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.	1.2	8
6	Comb-calibrated Stimulated-Raman Spectroscopy of H2. , 2021, , .		0
7	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.	1.1	8
8	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.	1.2	13
9	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.	1.1	5
10	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.	1.1	9
11	Comb-referenced Stimulated Raman Spectrometer: Application to the Collisional Physics of H2. , 2021, , .		0
12	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.	1.1	25
13	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.	1.1	14
14	Subpercent agreement between ab initio and experimental collision-induced line shapes of carbon monoxide perturbed by argon. Physical Review A, 2020, 102, .	1.0	9
15	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.	1.1	8
16	Accurate deuterium spectroscopy and comparison with ab initio calculations. Physical Review A, 2020, 101, .	1.0	6
17	H2 -He collisions: Ab initio theory meets cavity-enhanced spectra. Physical Review A, 2020, 101, .	1.0	24
18	Ab initio quantum calculations of collisional effects in molecular spectra. Journal of Physics: Conference Series, 2020, 1412, 132040.	0.3	0

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19	Line-shape parameters for the first rotational lines of HD in He. Molecular Astrophysics, 2020, 19, 100063.	1.7	16
20	Ultrahigh finesse cavity-enhanced spectroscopy for accurate tests of quantum electrodynamics for molecules. Optics Letters, 2020, 45, 1603.	1.7	26
21	Ab initio investigation of the line-shape parameters for atmosphere-relevant molecular systems. Journal of Physics: Conference Series, 2020, 1412, 132033.	0.3	0
22	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.	0.3	0
23	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.	0.3	1
24	Line-shape parameters for pure rotational Raman lines of D2 in He. Journal of Physics: Conference Series, 2019, 1289, 012026.	0.3	0
25	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.	1.2	15
26	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.	1.1	85
27	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.	1.2	28
28	Accurate deuterium spectroscopy for fundamental studies. Journal of Quantitative Spectroscopy and Radiative Transfer, 2018, 213, 41-51.	1.1	54
29	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.	1.1	20
30	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.	1.1	18
31	Ultra accurate measurements andab initiocalculations of collisional effects in pure D2.. Journal of Physics: Conference Series, 2017, 810, 012042.	0.3	1
32	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.	1.1	42
33	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.	1.1	15
34	A test of H2-He potential energy surfaces. European Physical Journal D, 2016, 70, 1.	0.6	24
35	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, .	1.0	27
36	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.	1.2	14

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37	Line coupling effects in the isotropic Raman spectra of N2: A quantum calculation at room temperature. Journal of Chemical Physics, 2014, 140, 044303.	1.2	6
38	An experimental and theoretical study of nitrogen-broadened acetylene lines. Journal of Quantitative Spectroscopy and Radiative Transfer, 2014, 142, 17-24.	1.1	11
39	Velocity-changing collisions in pure H2 and H2-Ar mixture. Journal of Chemical Physics, 2014, 141, 074301.	1.2	30
40	Line mixing effects in isotropic Raman spectra of pure N2: A classical trajectory study. Journal of Chemical Physics, 2014, 141, 184306.	1.2	5
41	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.	0.4	6
42	An ab initio potential energy surface for the C₂H₂â€“N₂ system. Molecular Physics, 2012, 110, 2761-2771.	0.8	6
43	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.	1.1	27
44	Collisional line widths of autoperturbed N2: Measurements and quantum calculations. Journal of Quantitative Spectroscopy and Radiative Transfer, 2011, 112, 2542-2551.	1.1	21
45	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.	1.1	21
46	Comparison of classical, semiclassical and quantum methods in hydrogen broadening of acetylene lines. Journal of Quantitative Spectroscopy and Radiative Transfer, 2011, 112, 1429-1437.	1.1	17
47	Comparison of quantum, semiclassical and classical methods in hydrogen broadening of nitrogen lines. Journal of Quantitative Spectroscopy and Radiative Transfer, 2011, 112, 1942-1949.	1.1	17
48	Potential Energy Surfaces for C[sub 2]H[sub 2]â^'X Systems and Quantum Collisional Line Broadening. , 2010, , .		0
49	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.	0.4	7
50	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.	0.4	16
51	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.	1.1	15
52	Low-temperature inelastic collisions between hydrogen molecules and helium atoms. Journal of Chemical Physics, 2008, 128, 224308.	1.2	11
53	Linewidths of C2H2 perturbed by H2: experiments and calculations from an ab initio potential. Physical Chemistry Chemical Physics, 2008, 10, 5419.	1.3	43
54	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

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55	Collisional line widths of autoperturbed N[sub 2]: measurements and quantum calculations. , 2008, , .		0
56	Q-branch linewidths of N2 perturbed by H2: Experiments and quantum calculations from an ab initio potential. Journal of Chemical Physics, 2007, 126, 204302.	1.2	27
57	Inelastic collisions in molecular nitrogen at low temperature (2â©½Tâ©½50K). Journal of Chemical Physics, 2007, 127, 134305.	1.2	18
58	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.	1.2	23
59	Molecular-beam scattering and pressure broadening cross sections for the acetylene-neon system. European Physical Journal D, 2007, 44, 337-344.	0.6	11
60	Vibration-dependent trajectories and their effects on vibrational dephasing. Journal of Molecular Spectroscopy, 2007, 243, 105-112.	0.4	9
61	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.	0.4	14
62	Dicke-Narrowed Line Shapes in CO-Ar: Measurements, Calculations, and a Revised Interpretation. AIP Conference Proceedings, 2006, , .	0.3	0
63	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.	0.4	27
64	Dicke-narrowed spectral line shapes of CO in Ar: Experimental results and a revised interpretation. Journal of Molecular Spectroscopy, 2006, 235, 54-68.	0.4	53
65	Rotranslational state-to-state rates and spectral representation of inelastic collisions in low-temperature molecular hydrogen. Journal of Chemical Physics, 2006, 125, 124301.	1.2	17
66	Theoretical He-broadening coefficients of infrared and Raman C2H2 lines and their temperature dependence. Journal of Molecular Spectroscopy, 2005, 234, 286-288.	0.4	17
67	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.	1.2	41
68	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.	1.1	31
69	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.	1.2	23
70	Ar-Broadening of isotropic Raman lines in the Î½2 band of acetylene. Journal of Molecular Spectroscopy, 2004, 225, 48-54.	0.4	20
71	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.	0.4	21
72	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.	1.2	19

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73	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.	1.2	12
74	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.	1.2	26
75	Raman and infrared linewidths of CO in Ar. Journal of Chemical Physics, 2002, 117, 2523-2531.	1.2	38
76	Spectral line shape of theP(2)transition in CO-Ar: Uncorrelatedab initiocalculation. Physical Review A, 2002, 66, .	1.0	42
77	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.	1.2	61
78	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.	1.2	12
79	Shifts of helium and argon broadened CO lines: Asymmetry in line number m. AIP Conference Proceedings, 2001, , .	0.3	0
80	Experimental and theoretical CO2â€“Ar pressure-broadening cross sections and their temperature dependence. Physical Chemistry Chemical Physics, 2001, 3, 3924-3933.	1.3	46
81	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.	1.2	50
82	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
83	Experimental and theoretical CO2â€“He pressure broadening cross sections. Physical Chemistry Chemical Physics, 2000, 2, 5404-5410.	1.3	29
84	Double scattering on the nucleus in the perturbative QCD. European Physical Journal C, 1999, 6, 343-348.	1.4	13
85	Spectral Lineshape Parameters Revisited for HF in a Bath of Argon. Journal of Molecular Spectroscopy, 1999, 198, 257-262.	0.4	15
86	Argon-broadened CO2 linewidths at high J values. Chemical Physics Letters, 1998, 284, 230-234.	1.2	10
87	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.	1.2	18
88	Collision-induced double transition effects in the 3Î½3CO2band wing region. Journal of Chemical Physics, 1997, 106, 2067-2072.	1.2	4
89	Line broadening and band profile of CO2 in helium at 193 K. , 1997, , .		0
90	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

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91	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.	1.1	3
92	Line-Mixing Effects inQBranches of CO2. Journal of Molecular Spectroscopy, 1997, 186, 256-268.	0.4	16
93	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
94	Q-branch shapes of CO2 spectrum in 15 Î¼m region: Experiment. Journal of Quantitative Spectroscopy and Radiative Transfer, 1996, 55, 321-334.	1.1	21
95	Line-mixing effects in the 3v3 band of CO2 perturbed by Ar. Journal of Quantitative Spectroscopy and Radiative Transfer, 1996, 55, 307-320.	1.1	18
96	Line mixing and line broadening in CO2 bands perturbed by helium at 193 K. Chemical Physics Letters, 1996, 263, 811-816.	1.2	3
97	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.	1.1	19
98	Measurements of Argon-Induced Shifts in the 2-0 Band of CO. Journal of Molecular Spectroscopy, 1995, 171, 576-578.	0.4	10
99	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.	1.1	34
100	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.	1.2	26
101	Line mixing effects in the 00Â°3â€"00Â°0 band of CO2 in helium. I. Experiment. Journal of Chemical Physics, 1994, 100, 210-214.	1.2	17
102	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.	1.2	25
103	The 3v3 band of CO2â€"influence of the pressurized perturber gas. Journal of Quantitative Spectroscopy and Radiative Transfer, 1994, 52, 361-366.	1.1	8
104	Absolute Intensities in CO2: 3Î½3 near 1.4 Î¼m. Journal of Molecular Spectroscopy, 1993, 159, 259-264.	0.4	13
105	Pressure induced shifts of CO2 lines: Measurements in the 0003â€"0000 band and theoretical analysis. Journal of Chemical Physics, 1992, 96, 4945-4953.	1.2	75
106	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.	1.2	41
107	12C16O: Experimental determination of the linear coefficient of the Herman-Wallis factor. Journal of Molecular Spectroscopy, 1991, 148, 329-337.	0.4	1
108	Measurement of Line Interference Parameters for the CO-He System. Europhysics Letters, 1990, 12, 319-323.	0.7	11