

Laurence Rothman

List of Publications by Year in descending order

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54
papers

4,793
citations

172207

29
h-index

168136

53
g-index

65
all docs

65
docs citations

65
times ranked

2884
citing authors

#	ARTICLE	IF	CITATIONS
1	The HITRAN database: 1986 edition. Applied Optics, 1987, 26, 4058.	2.1	863
2	Dipole moment of water from Stark measurements of H ₂ O, HDO, and D ₂ O. Journal of Chemical Physics, 1973, 59, 2254-2259.	1.2	626
3	ROVIBRATIONAL LINE LISTS FOR NINE ISOTOPOLOGUES OF THE CO MOLECULE IN THE $X^1\Sigma^+$ GROUND ELECTRONIC STATE. Astrophysical Journal, Supplement Series, 2015, 216, 15.	3.0	276
4	Recommended isolated-line profile for representing high-resolution spectroscopic transitions (IUPAC) Technical Report 1070-09-2009	0.9	225
5	IUPAC critical evaluation of the rotational-vibrational spectra of water vapor, Part III: Energy levels and transition wavenumbers for H ₂ ¹⁶ O. Journal of Quantitative Spectroscopy and Radiative Transfer, 2013, 117, 29-58.	1.1	215
6	IUPAC critical evaluation of the rotational-vibrational spectra of water vapor. Part I: Energy levels and transition wavenumbers for H ₂ ¹⁷ O and H ₂ ¹⁸ O. Journal of Quantitative Spectroscopy and Radiative Transfer, 2009, 110, 573-596.	1.1	188
7	Einstein A-coefficients and statistical weights for molecular absorption transitions in the HITRAN database. Journal of Quantitative Spectroscopy and Radiative Transfer, 2006, 98, 130-155.	1.1	179
8	IUPAC critical evaluation of the rotational-vibrational spectra of water vapor. Part II. Journal of Quantitative Spectroscopy and Radiative Transfer, 2010, 111, 2160-2184.	1.1	178
9	Total internal partition sums in the temperature range 70-3000 K: Atmospheric linear molecules. Journal of Molecular Spectroscopy, 1990, 142, 205-219.	0.4	141
10	Direct numerical diagonalization: Wave of the future. Journal of Quantitative Spectroscopy and Radiative Transfer, 1992, 48, 763-780.	1.1	125
11	Total internal partition sums for 166 isotopologues of 51 molecules important in planetary atmospheres: Application to HITRAN2016 and beyond. Journal of Quantitative Spectroscopy and Radiative Transfer, 2017, 203, 70-87.	1.1	122
12	The virtual atomic and molecular data centre (VAMDC) consortium. Journal of Physics B: Atomic, Molecular and Optical Physics, 2016, 49, 074003.	0.6	120
13	Update of the HITRAN collision-induced absorption section. Icarus, 2019, 328, 160-175.	1.1	105
14	HITRANonline: An online interface and the flexible representation of spectroscopic data in the HITRAN database. Journal of Quantitative Spectroscopy and Radiative Transfer, 2016, 177, 4-14.	1.1	92
15	An Accurate, Extensive, and Practical Line List of Methane for the HITEMP Database. Astrophysical Journal, Supplement Series, 2020, 247, 55.	3.0	92
16	IUPAC critical evaluation of the rotational-vibrational spectra of water vapor. Part IV. Energy levels and transition wavenumbers for D ₂ ¹⁶ O, D ₂ ¹⁷ O, and D ₂ ¹⁸ O. Journal of Quantitative Spectroscopy and Radiative Transfer, 2014, 142, 93-108.	1.1	80
17	A database of water transitions from experiment and theory (IUPAC Technical Report). Pure and Applied Chemistry, 2014, 86, 71-83.	0.9	76
18	Current updates of the water-vapor line list in HITRAN: A new code for air-broadened half-widths. Journal of Quantitative Spectroscopy and Radiative Transfer, 2007, 108, 389-402.	1.1	71

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19	Total internal partition sums to support planetary remote sensing. <i>Icarus</i> , 2011, 215, 391-400.	1.1	70
20	Extension of the HITRAN database to non-LTE applications. <i>Journal of Quantitative Spectroscopy and Radiative Transfer</i> , 1992, 48, 519-525.	1.1	64
21	Improved spectral parameters for the three most abundant isotopomers of the oxygen molecule. <i>Journal of Quantitative Spectroscopy and Radiative Transfer</i> , 1998, 59, 495-509.	1.1	64
22	H ₂ , He, and CO ₂ line-broadening coefficients, pressure shifts and temperature-dependence exponents for the HITRAN database. Part 1: SO ₂ , NH ₃ , HF, HCl, OCS and C ₂ H ₂ . <i>Journal of Quantitative Spectroscopy and Radiative Transfer</i> , 2016, 168, 193-206.	1.1	62
23	Spectroscopic line parameters of NO, NO ₂ , and N ₂ O for the HITEMP database. <i>Journal of Quantitative Spectroscopy and Radiative Transfer</i> , 2019, 232, 35-53.	1.1	59
24	HITRAN HAWKS and HITEMP: high-temperature molecular database. , 1995, , .		56
25	A Decade with VAMDC: Results and Ambitions. <i>Atoms</i> , 2020, 8, 76.	0.7	53
26	Semi-empirical calculation of air-broadened half-widths and air pressure-induced frequency shifts of water-vapor absorption lines. <i>Journal of Quantitative Spectroscopy and Radiative Transfer</i> , 2005, 96, 205-239.	1.1	48
27	Reference spectroscopic data for hydrogen halides. Part I: Construction and validation of the ro-vibrational dipole moment functions. <i>Journal of Quantitative Spectroscopy and Radiative Transfer</i> , 2013, 121, 78-90.	1.1	45
28	High sensitivity CRDS of the ν_3 band of oxygen near 1.27 μ m: Extended observations, quadrupole transitions, hot bands and minor isotopologues. <i>Journal of Quantitative Spectroscopy and Radiative Transfer</i> , 2010, 111, 2236-2245.	1.1	40
29	A new relational database structure and online interface for the HITRAN database. <i>Journal of Quantitative Spectroscopy and Radiative Transfer</i> , 2013, 130, 51-61.	1.1	38
30	AFGL trace gas compilation. <i>Applied Optics</i> , 1978, 17, 507.	2.1	36
31	Revision of spectral parameters for the B- and \hat{I}^3 -bands of oxygen and their validation against atmospheric spectra. <i>Journal of Quantitative Spectroscopy and Radiative Transfer</i> , 2011, 112, 2310-2322.	1.1	29
32	The evolution and impact of the HITRAN molecular spectroscopic database. <i>Journal of Quantitative Spectroscopy and Radiative Transfer</i> , 2010, 111, 1565-1567.	1.1	28
33	HITRAN spectroscopy evaluation using solar occultation FTIR spectra. <i>Journal of Quantitative Spectroscopy and Radiative Transfer</i> , 2016, 182, 324-336.	1.1	28
34	HIGH-TEMPERATURE SPECTRUM OF H ₂ O IN THE 720-1400cm ⁻¹ REGION. <i>Journal of Quantitative Spectroscopy and Radiative Transfer</i> , 1998, 60, 711-739.	1.1	25
35	VAMDC "The Virtual Atomic and Molecular Data Centre" A New Way to Disseminate Atomic and Molecular Data "VAMDC Level 1 Release. AIP Conference Proceedings, 2011, , .	0.3	24
36	The HITRAN molecular database. , 2013, , .		23

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37	Rotational and vibrational dependences of collisional linewidths in the $n^{1/2}_2$ hot bands of H ₂ O from Fourier-transform flame spectra. <i>Applied Optics</i> , 1992, 31, 1179.	2.1	22
38	Reference spectroscopic data for hydrogen halides, Part II: The line lists. <i>Journal of Quantitative Spectroscopy and Radiative Transfer</i> , 2013, 130, 284-295.	1.1	22
39	History of the HITRAN Database. <i>Nature Reviews Physics</i> , 2021, 3, 302-304.	11.9	22
40	History and future of the molecular spectroscopic databases. <i>Comptes Rendus Physique</i> , 2005, 6, 897-907.	0.3	21
41	The first comprehensive dataset of beyond-voigt line-shape parameters from ab initio quantum scattering calculations for the HITRAN database: He-perturbed H ₂ . <i>Journal of Quantitative Spectroscopy and Radiative Transfer</i> , 2021, 268, 107477.	1.1	21
42	Introduction of Water Vapor Broadening Parameters and Their Temperature-Dependent Exponents Into the HITRAN Database: Part I: CO ₂ , N ₂ O, CO, CH ₄ , O ₂ , NH ₃ , and H ₂ S. <i>Journal of Geophysical Research D: Atmospheres</i> , 2019, 124, 11580-11594.	1.2	20
43	Revising the line-shape parameters for air- and self-broadened CO ₂ lines toward a sub-percent accuracy level. <i>Journal of Quantitative Spectroscopy and Radiative Transfer</i> , 2020, 256, 107283.	1.1	18
44	Laser spectroscopic monitoring of gas emission and measurements of the ¹³ C/ ¹² C isotope ratio in CO ₂ from a wood-based combustion. <i>Journal of Quantitative Spectroscopy and Radiative Transfer</i> , 2008, 109, 151-167.	1.1	17
45	Improvement of the spectroscopic parameters of the air- and self-broadened N ₂ O and CO lines for the HITRAN2020 database applications. <i>Journal of Quantitative Spectroscopy and Radiative Transfer</i> , 2021, 271, 107735.	1.1	13
46	Are your spectroscopic data being used?. <i>Journal of Molecular Spectroscopy</i> , 2016, 327, 232-238.	0.4	12
47	Comment on "Radiative forcings for 28 potential Archean greenhouse gases"; by Byrne and Goldblatt (2014). <i>Climate of the Past</i> , 2015, 11, 1097-1105.	1.3	10
48	Magnetic dipole infrared atmospheric oxygen bands. <i>Applied Optics</i> , 1982, 21, 2428.	2.1	7
49	Referencing Sources of Molecular Spectroscopic Data in the Era of Data Science: Application to the HITRAN and AMBDAS Databases. <i>Atoms</i> , 2020, 8, 16.	0.7	6
50	Special issue on planetary atmospheres. <i>Journal of Quantitative Spectroscopy and Radiative Transfer</i> , 2008, 109, 881.	1.1	4
51	Spectroscopic Archives and Transmission Codes for the Atmosphere and their Application to Laser Sensing. , 2008, , .		1
52	Atmospheric molecules. <i>AIP Conference Proceedings</i> , 2000, , .	0.3	0
53	A story of a seminal line-shape paper. <i>Journal of Quantitative Spectroscopy and Radiative Transfer</i> , 2010, 111, 1461-1462.	1.1	0
54	A note on a pioneering work in quantitative spectroscopy: UV bands of the hydroxyl radical. <i>Journal of Quantitative Spectroscopy and Radiative Transfer</i> , 2010, 111, 1514-1515.	1.1	0